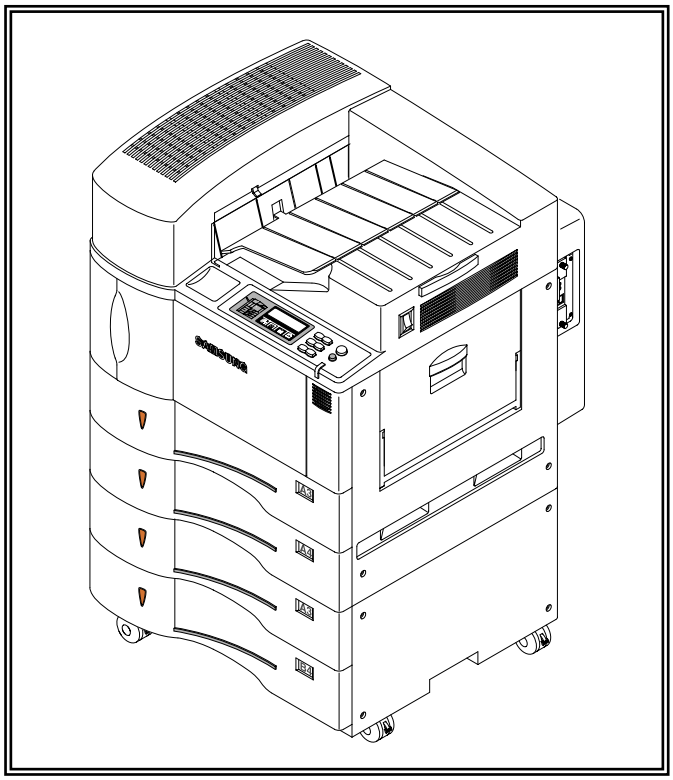
SAMSUNG

Samsung Laser Printer

ML-3550N

SERVICE *Manual*

LASER PRINTER



CONTENTS

1. Precautions
2. Outline
3. Construction and Operation
4. Disassembly and Assembly
5. Maintenance
6. Troubleshooting
7. Exploded view and Part List

ⓒ Samsung Electronics Co.,Ltd. May 2003
Printed in Korea.
VERSION NO. : 1.02 **CODE** : JC-0070A

This service manual is written for a professional service person.

This manual cannot be copied or translated without written permission except in case of one has purchase right or copyright allows.

The contents can be changed without any prior information.

Copyright(c) 2003. 5.

Produce: Samsung Electronic, LTD
Digital Printing CS Group

1. Precautions

Read the following cautions before repairing this printer. Please read and understand the cautions for your safety.

1.1 Cautions for safety

❶ Do not look into the inner side of the printer.

This printer uses laser diode. Do not look into the inner side of the machine when power is on, or put mirror, metal, etc. into the printer. If the laser beam contacts a human's eye, it can cause blindness. (Laser beam cannot be observed by human's eyes)

❷ Do not disassemble, repair, or rebuild the printer.

Do not disassemble, repair or rebuild parts, which are not mentioned in this service manual. Doing so can cause malfunctions and an electric shock and a fire can occurr.

❸ If there are strange smell or sound...

If there are strange smells or sounds turn off the power and pull out the plug from an outlet. If continually using the machine may cause a fire.

❹ Do not put any foreign object into the printer.

Do not put any foreign objects into the printer.
It may cause an electric shock or fire.

1.2 Cautions of safety

⚠ Warning 1

LCD contains harmful materials.
Liquid in LCD is harmful to humans.

❶ Do not touch the damaged LCD.

This printer has LCD on the Operating panel. In the LCD, there is a liquid, bad for human body. If the liquid contacts to a mouth, please rinse off immediately and go to see a doctor. Also, if it contacts to eyes, rinse it off with flowing water over 15 minutes and go to see a doctor.

⚠ Warning 2

If you don't follow this manual, you can get burned or an electronic shock.

❶ Do use proper power voltage.

The outlet for power supply must have appointed current or voltage. If not, a fire or a leakage of electricity can be occurred.

❷ Do use specified power cord.

Do use the cord supplied with the printer.
If higher current than regular power flows through the power cord, a fire can be occurred.

❸ Do not connect many plugs into one outlet.

This higher current flow in the outlet may cause a fire.

❹ Do not put water or foreign objects into printer.

Do not put foriegn object or liquid in or on the priner. It may cause fire, electric shock, or malfunction. If this accidently occurs remove the power immediately remove plug from the outlet.

❺ Do not touch the power plug with wet hands.

Please remove the power plug from an outlet when servicing. Also, do not put in or pull out the plug with wet hands. It can cause an electric shock.

❻ When you put in or pull out the plug...

When you put in or pull out the plug, you should do it by grabbing the plug part. If you put in or pull out the plug by grabbing the cord part, the cord can be damaged and it can cause a fire or an electric shock.

❼ When you put in the plug, put in it securely.

Do put the plug securely.
If not, fire can be occurred due to connecting inferiority.

❽ Do handle the power cord carefully...

Do not bend, twist, or tie it or put heavy object on it. Also, do not fix it by staple. If a cord is damaged, fire or electric shock can be occurred.

❾ Do replace the damaged power cord immediately.

A damaged power cord must be replaced immediately with a same type of cord. Do not repair and use it. If you repair it with a tape, a fire or electric shock can be occurred.

❿ Do not spray any kind of medical stuff.

Do not spray an insecticide or other medical stuff on the power cord. The cover of the cord can be thinner due to the behavior. It can cause a fire or electric shock.

⓫ When there is thunder and lightening...

Those can cause a fire or an electric shock. Pull out the power plug from an outlet and do not touch a cable or other parts when thundering and lightening.

⓬ Do avoid dusty and high moist place.

Do not install the printer at place where has dust or high moist place (around a humidifier). It is possible to occur a fire. Pull out the plug separately and clean it with dry fabric. If water drops on the dusty place, a fire can be occurred.

⓭ Do avoid direct sunlight.

Do not install the printer at place exposes to a direct sunlight like near by a window. It do, inner temperature is getting higher. Therefore, a malfunction or a fire can be occurred.

⚠ Warning 3

Disregarding this warnning may cause bodly injury.

❶ Be careful with the high temperature part.

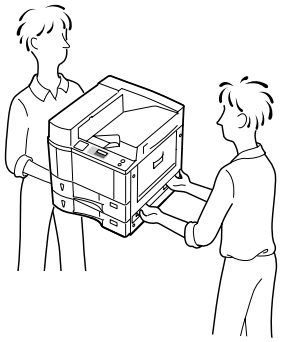
The fuser unit works at a high temperature. Use caution when working on the printer. Wait for the fuser to cool off before disassebly.

❷ Do not put finger or hair into the rotating parts.

When operating a printer, do not put hand or hair into the rotating parts (Paper feeding entrance, motor, fan, etc.). If do, you can get harm.

❸ When you move the printer...

This printer is 60 kg including developing cartridge and cassette. If you wish to move it, it must be moved by two people. Do grab the handle at each side and hold the front. If one person tries to move it, it can cause a physical injury (back born).



❹ Do not install printer on an unstable place.

Do not install the printer on an unstable place. This can cause bodily harm, or damage the printer. It is 60 kg, so if you wish to put it on a table, check the table bo be sure the tablet is strong enough to support the printet.

❺ Do not install a printer on an inclined floor or an unbalanced place. After installation, double check that the printer is stable.

1.3 ESD Cautions

Several semiconductor devices can be damaged easily by static electricity. Such parts are called ESD (Electrostatically sensitive devices), and IC, semiconductor chip, etc. are ESD.

Please read the cautions shown in the below. Damages from static electricity can be prevented.

> ⚠ **Warning :** Do pull out all the power and keep the cautions for safety.

1. Static electricity, remains on a body, must be removed before handle semiconductors or parts attach a semiconductor. Touch a ground or tie a leather belt on a wrist, which prevent static electricity,.
2. After separate the ESD part, put it on the surface of aluminum or copper, which have conductivity ability, to prevent static electricity.
3. Do use a soldering wire when you connect or disconnect the ESD.
4. Do use a soldering remover treated with 'static electricity breaker' function. If not, ESD can be damaged due to a static electricity.
5. Do not use chemical product has the Freon ingredient. When the Freon gas is jetting, a static electricity is occurred. Therefore, it can damage the ESD.
6. Do unpack the ESD package right before install it. The most of ESD are packed with conductive box, aluminum plate, and etc., which prevent static electricity.
7. Before take off the tape for preventing current from the soldering part of ESD, do make the soldering part to get in touch with the circuit part.
8. An electric connection between ESD and the part must be maintained until the ESD is securely put-in or it is attached on circuit plate.
9. Be careful to move your body when you handle the unpacked ESD replacement part. To rub clothes or to step on a carpet occur a static electricity, which can damage the ESD.

1.4 Cautions for replacement and management of the inferior parts

1. When you replace the video controller PBA, you must disassemble the NVRAM(U2) from the used PBA and attach it to the new PBA. The NVRAM stores several important information such as history of printout counts, jam occurring counts, unit replacing counts, and so on. If you replace the NVRAM with a new one, all the information is erased as initial status as from factory.
   In this case, it is difficult to maintain or to repair the product properly.
   When replace the video controller PBA, the NVRAM must be attached to a new PBA.

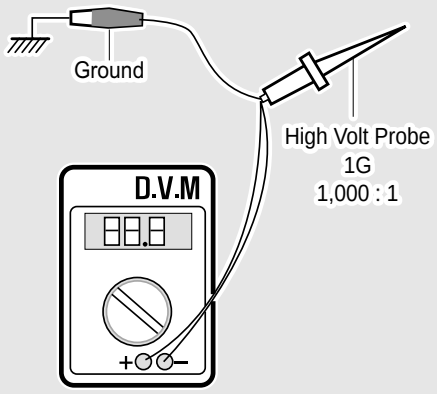
2. This printer is easy to repair and to replace because the most of parts are modularized, and has functions to check the using amount and the life span of each unit.
   After replacing the inferior parts, initialize the using amount of the part, which stored in system.
   (Chapter 6 Troubleshooting - Service Mode - Reset Unit CNT: refer to the 6-51 page)

3. Some parts are consumption parts such as engine oil or belt of car. The parts' life span is stored in NVRAM, and you can check the using amount of parts when you need.
   After replacing the parts, the life count value must be initialized for informing the replacement to the machine.
   (Chapter 6 Troubleshooting - Service Mode - Reset Unit CNT: refer to the 6-51 page)

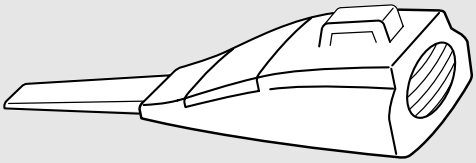
1.5 Tool list for repair

It is recommend to use the tools shown in the below for proper repair explained in this service manual.

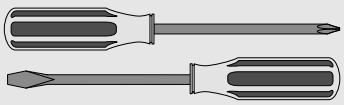
❶ DVM (Digital Volt Meter)
• Standard: Displays over 4 digits (DC, AC)



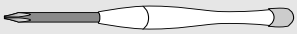
❷ Vacuum



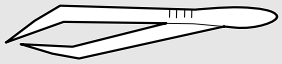
❸ Driver
• Standard: "-" shape type, "+" shape type (M3 long, M3 short, M2 long, M2 short)



❹ Timer driver
• Standard: "+" shape type (M3)



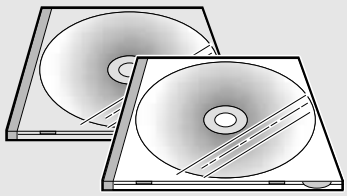
❺ Tweezers
• Standard: For home use, small type



❻ Cotton swab
• Standard: For home use, For medical use

❼ Cleaning tool
• Dry fabric or soft fabric.
• IPA: Isopropyl Alcohol)

❽ Software(Driver) installing CD-ROM
• Installing driver CD-ROM
• Networking installing CD-ROM



⚠ Warning

When disassembling or assembling the PBA Ass'y, be careful not to touch the part due to its sensitiveness for the electric static.

2. Outline

2.1 Printer Engine

ITEM	SPEC	REMARK
Printing Speed	35 PPM (A4)	
Resolution	600 DPI, 1200 DPI Class	
Scanning	LSU	
Technology	Electronic Photo Process	
Toner, Fusing	2 Components Toner, Heat/Pressure	
Operating time	Cold WarmUp : 60 sec Less than FPOT : 12.5 sec Less than	
Dimension	560 (W) X 498 (D) X 560 (H) mm	
Weight	60 Kg (convert to LBS.)	Gross Weight
Power Supply	EURO : 220 ~ 240 VAC USA : 100 ~ 120 VAC	50 ~ 60 Hz
Consumption Power	Standby : 250 W ↓, Sleep : 40 W ↓, Printing : 850 W	
Noise	Simplex : 55 dB ↓ Duplex : 58 dB ↓ Stand by : 40 dB ↓	

2.2 Controller

ITEM		SPEC	REMARK
Processor		Power PC 603e 266 MHz	
Memory	RAM	Basic : 32 M Option : 2 DIMM SLOT	64/128MB Refer to the 7.15 others (Separately purchase)
	ROM	1 DIMM SLOT	
Emulation Fonts		PCL6, PS3 10 True Type Outlines 1 PCL Bitmap 136 PS3 Font	
Interface		Basic type : IEEE1284, USB, Ethernet 10/100 TX	Auto interface switching
Device Driver		PCL for WIN 9x/NT, 2000, Mac, Linux (1) PS 3 for WIN 9x/NT, 2000, Mac, Linux	

(1) **MAC OS : Network Connection** : • Power Macintosh or higher
• Macintosh OS 8.6 or higher

USB Connection : • G3 or higher
• Macintosh OS 8.6 or higher
• USB port

2.3 Print paper

ITEM	SPEC	REMARK
Input Tray	2 x 500 Sheets CST (75 g/m² or 20 lb) : 60 to 105 g/m² (16 to 28 lb) Sheets Option Cassette (SCF) : 2x500 Sheets : 60 to 105 g/m² (16 to 28 lb) Sheets 50 Sheets MPF (75 g/m² or 20 lb) : 60 to 165 g/m² (16 to 43 lb) Sheets	Maximum 2,000 sheets : 75g loading amount
Output Tray	Maximum 500 Sheets F/D (Standard of 75 g/m² (20 lb) paper)	
Sheet Size	CST : A5, B5, B4, Exec, A4, Letter, Folio, State, Legal, A3,11"x17" MPF : A6 ~ A3, 11"x17",12.28"x18.5"(306mm x 465mm), B4, B5, LTR Folio, State	Max Print Line : 12.05"x18.31"
Duplex	32 IPM (Image Per Minute) : Standard of horizontal output of the A4 paper(LTR)	

2.4 Environment

ITEM	SPEC	REMARK
Operating Environments	Temperature : 10 ~ 32 ℃ Humidity : 20 ~ 80 %	
Storage Environments	Temperature : -20 ~ 50 ℃ Humidity : 0 ~90 %	

2.5 Consumption parts

ITEM	SPEC	REMARK
Toner Container	25,000 Sheets Container (40,000 Economy), 5% density standard	User can replace it
Developer unit	50,000 Sheets (For sale), A4 Sheet, 5% density standard	Service person should replace it.
Fuser Ass'y	200,000 Sheets : A4 standard	Service person should replace it.
Pick-up roller rubber	100,000 Sheets : A4 standard	Service person should replace it.
Transfer Ass'y	100,000 Sheets : A4 standard	Service person should replace it.
MPF Roller & Rubbing Pad	100,000 Sheets : A4 standard	Service person should replace it.
Exit Ass'y	500,000 Sheets : A4 standard	Service person should replace it.
Main Fan	750,000 Sheets : A4 standard	Service person should replace it.

※ Please refer to the **[Chapter 5 Maintenance]** for the consumption parts and the life span parts.

2.6 Network Type

ITEM	SPEC	REMARK
OS support (Network Operating Systems)	• Windows 95/98/ME/XP • Windows NT 4.0/2000 • NetWare (3.x,4.x,5.x), NDS and Bindery Mode/PSERVER and PRINTER • UNIX(LPR)- LINUX(LPR) • OS 400(LPR) • Macintosh(7.0 higher)	
Protocols support (Network Protocols Supported)	• TCP/IP(Port 2000) : Windows 95/98/ME/XPWindows NT 4.0/2000 • LPR(Port 515): Windows NT4.0/2000/XP, UNIX, LINUX, Macintosh, OS-400 • 9100 Port : Windows 2000/XP, UNIX, LINUX • IPP : Windows 95/98/ME/XP, NT4.0/2000 • IPX/SPX : Windows 95/98/ME/XP/NetWare 3.x/4.x/5.x • DLC/LLC: Windows 95/98/Windows NT 4.0/2000 • EtherTalk: Macintosh(7.0 higher) • SMB(NetBEUI,NetBIOS): Windows95/98/ME/XP/Windows NT 4.0/2000.	For Printing
	• SNMP (Based on DLC/LLC, TCP/IP, IPX/SPX)	For Management
Network Card Interface	• Ethernet 10/100 Base TX (Auto Negotiation)	
Administrator Program (Network Management S/W)	• SyncThru : Samsung' Admin Software Utility. Based on Windows Operating System. • SNMP and MIB-II Support. • HTTP server for web browser based network management (can manage NPC and printer options on web browser)	
Application Program for user	• JMS(Job Management System) : can manage print job. • Status Monitor : can monitor printer's status. • Port Monitor: can print some job by Samsung Network Print Port • IPP (Internet Printing Protocol) Port Monitor and Client : can print some job over Internet. • SetIP : can set IP address.	

2.7 Panel Type

ITEM	SPEC	REMARK
User Panel	8 Keys, LED Key(2 Color), 2x16 ICON LCD	

3. Construction and Operation

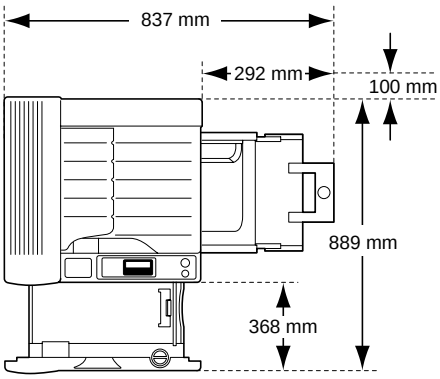
The Samsung ML-3550N is a high-speed laser printer that prints 35 pages per minute. (A4 horizontal standard) The ML-3550N has a print resolution of 600dpi. It also has a duplex printing function and a offset catch function, that automatically arranges document for convenience of the network user.

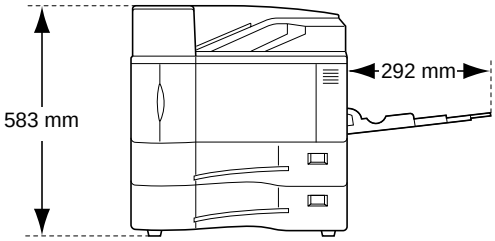
3.1 Printer size and Installation

The printers location should allow enough space to open covers, Multi-cassettes, and cassettes.

▶ **Do avoid the place mentioned in the below.**

- Bad ventilated place
- Exposed by direct sunlight
- Inclined place
- Near to heater
- Moist place

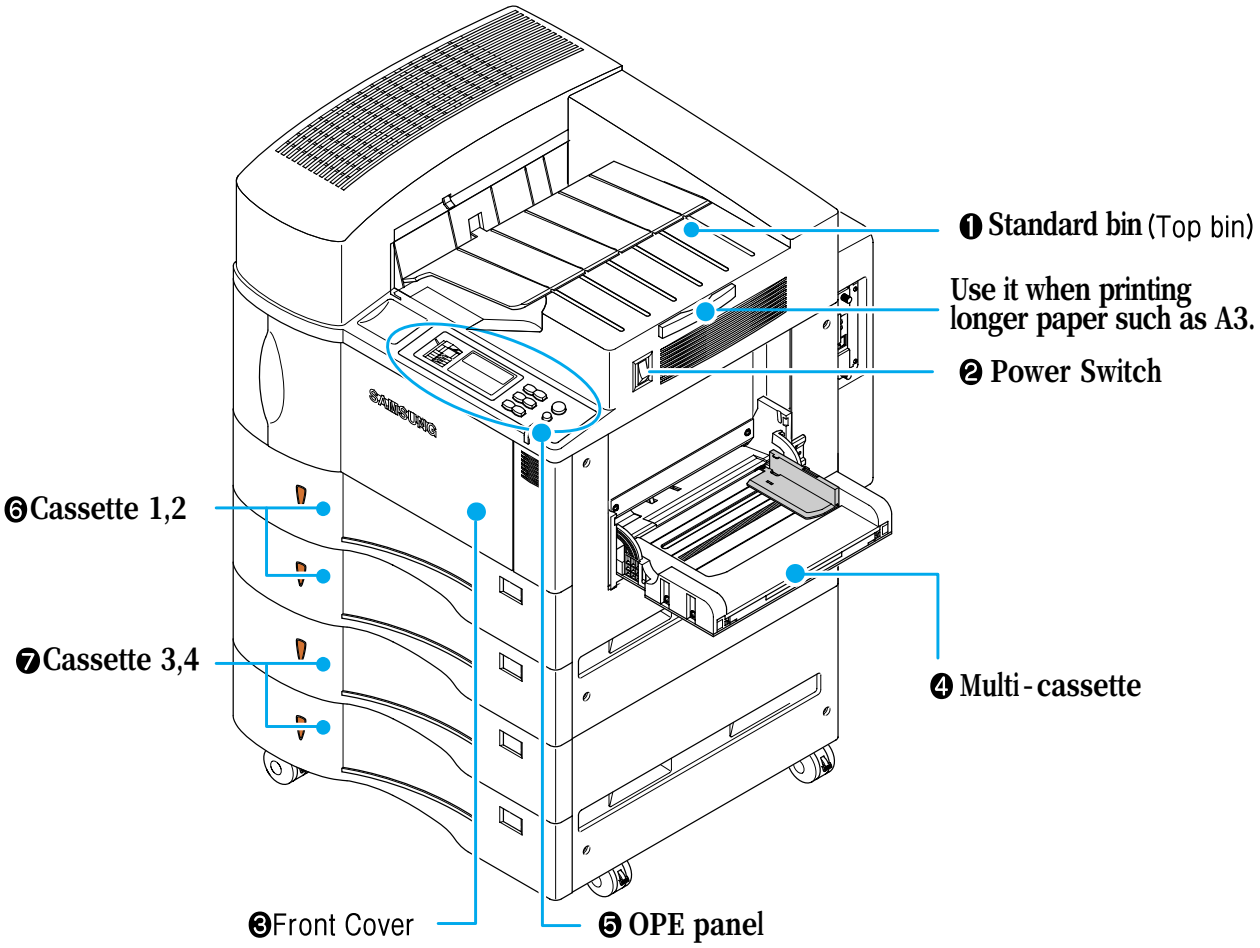




Warning

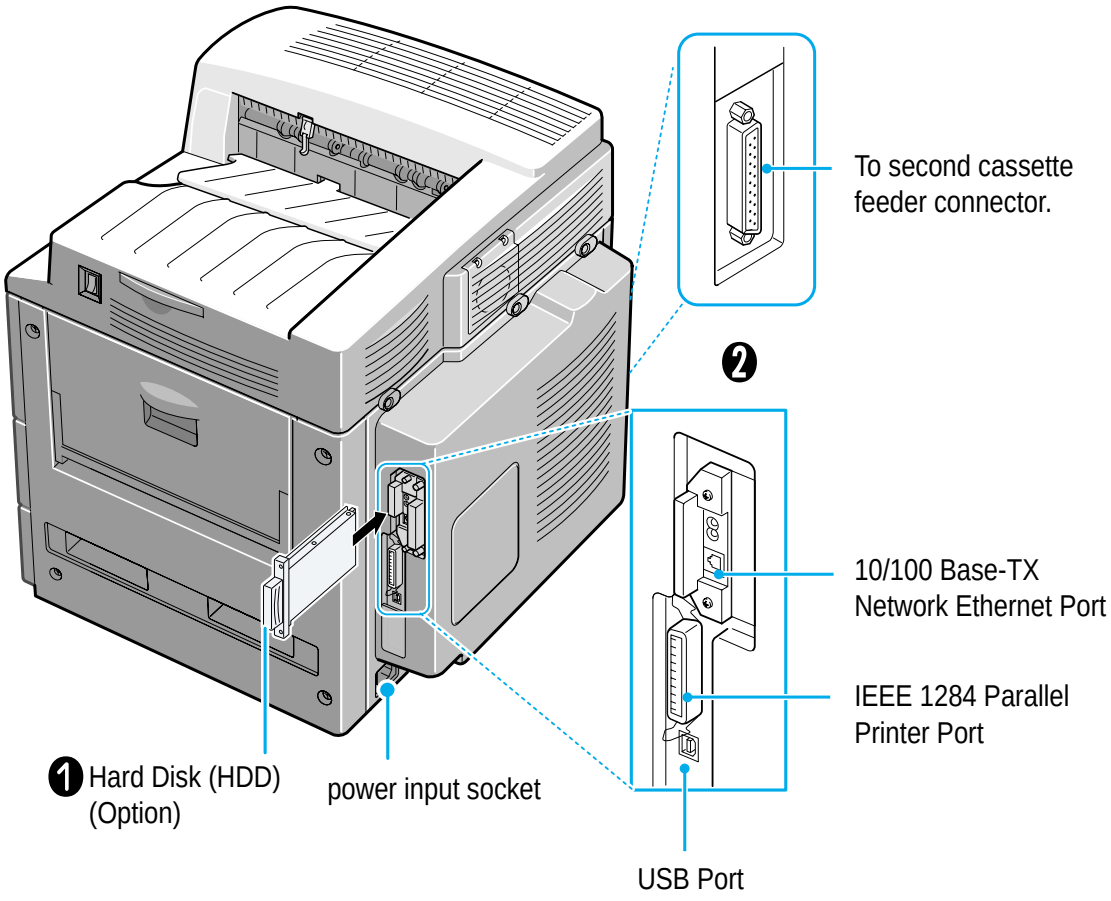
1. Do move this printer with at least two people due to its heavy weight.
2. Do install this printer in balance.
   Do not install it on the inclined surface.

3.1.1 Front part of the printer



Name	Functions
❶Standard bin (Top bin)	This is the basic (standard) output tray. The printed side is always faced down.
❷Power Switch	It is a function to turn the power ON/OFF.
❸Front Cover	It needs to be opened when installing the developer or toner cartridge.
❹Multi-cassette	It is used when various paper types are fed such as envelops, OHP, etc.
❺OPE panel	It has display a window for displaying the present status, buttons for selecting functions of printer, and a lamp.
❻Cassette 1, 2	500 standard sheets can be fed from the each cassette (75g sheets standard).
Optional Feeding Device	
❼Cassette 3,4	The each cassette can feed 500 standard sheets. (75g sheets standard)

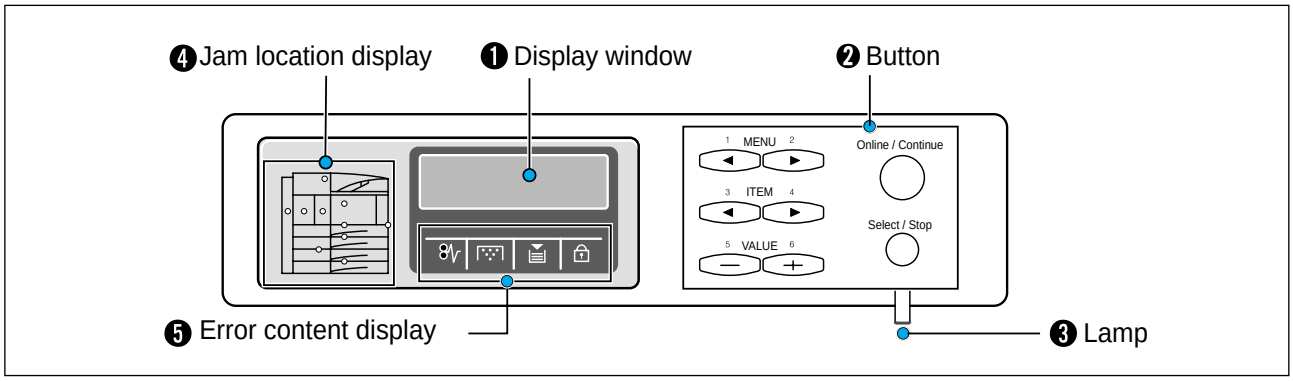
3.1.2 Rear part of the printer



Name	Functions
❶ **Hard disc (Option)**	It is 10 Gbytes, enough to download all files which user sends, so it reduces the standby time for print. After printing, it can store the information, and the other various functions such as printing confidential document function can be used.
❷ **Computer connecting interface**	It services the IEEE 1284 Parallel Port and 10/100 Base TX network Ethernet Port. It means that it is well interfaced with a personal (local type) computer environment and a network environment.

3.2 OPE Panel

A switch for displaying the status of the printer and for operation, LED, and LCD for displaying the status of the device, errors, and so on are attached on the panel.



<Error display unit tells at where an error is occurred>

Name	Functions
❶ **Display window**	It shows the present status of the printer and the menu.
❷ **Button**	Refer to the function of the OPE panel button.
❸ **Lamp**	Refer to the table of the error display status.
❹ **Jam location display**	It tells where the jam occurs.
❺ **Error content display**	An icon for each error status is on.

3.2.1 Error display window

Status of lamp	Conditions
READY	• It is an online status, Ready to print. • If pushing the [Online] button, it becomes an offline status, and if pushing a [Menu] button, it becomes a menu status.
OFFLINE	• It is offline standby status, tells it is impossible to print. • when pushing a [Menu] button, it becomes a menu status.
PRINTING XXX (XXX : file_name)	• It tells the machine is printing. On the last line, the file name is displayed. Also, a page name can be displayed when a page provided by computer is being printed.
SLEEPING	• Power save mode. Power save is canceled when the machine receives a data or any button is pushed.

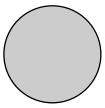
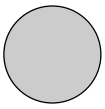
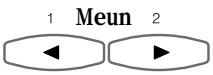
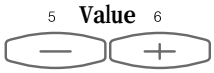
3.2.2 Error display icon

Status of lamp	Conditions
(Paper Jam)	When the jam occurs, the Red light is on.
(Toner Low)	When the toner is low, the Red light is on.
(Paper Empty)	When there is no paper, the Red light is on.
(Interlock)	When cover is open, the Red light is on.

3.2.3 Error display status

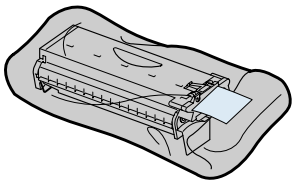
Status	Conditions
Off.	• The machine is offline status, tells impossible status to receive data. Press the [Online/Continue] button to become an online status. • The machine is power save mode status, tells possible status to receive data.
Green Light On.	• The machine is online status, tells possible status to print.
Green Light Flashing.	• (Slow flashing) Data is being received to the printer. • (Fast flashing) The machine is printing. It is flashing swiftly while receiving data and printing at the same time.
Orange Light On.	• The machine is stopped due to an error. The error can be discriminated by checking the error display icon or messaged in the display window.
Orange Light Flashing.	• It is a warning error, and the machine waits until user clears the error. Check the error contents from a window and clear it. After clearing the errorr, the printing process is continues.

3.2.4 Function of the OPE panel

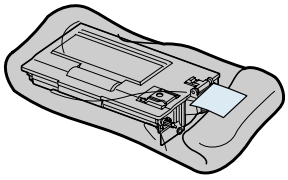
Status of lamp	Conditions
Online / Continue 	• The button is for selecting online or offline. The online is standby status for print, and the offline is impossible status to print. When data doesn't be needed for a while, select offline status. • Select the Continue button if you wish to keep printing even though a warning error is showing up.
Select / Stop 	• After changing a value of item while using the menu, press it to select value. For example, if changing paper count for printing several pages, press the [Enter/Stop] button. The papers will be printed as many as selected paper counts since a screen displays designation. • Press it when canceling the menu status or erasing the received data while printing.
	• Press it when operating the menu. Press [▶] to move to next menu and press [◀] to move to previous menu. • In case of pressing a secret number for printing confidential document, use [1] & [2] button to enter
	• Used to scroll through the menu. Press [▶] to move to next item and press [◀] to move to previous item. • In case of pressing a secret number for printing confidential document, use [3] & [4] button to enter figure 3 & 4.
	• In the menu, the values and items of each item are repeated. Press [+] to move to next value and press [-] to move to previous value. • In case of pressing a secret number for printing confidential document, use [5] & [6] button to enter figure 5 & 6.

3.3 Other supplies list

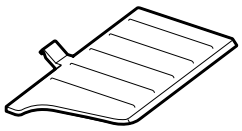
❶ Drum Cartridge



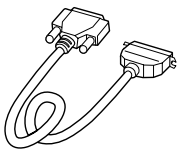
❷ Toner Cartridge



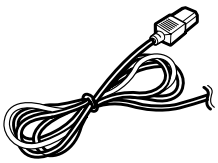
❸ Discharged paper support bin



❹ Printer Cable (Parallel cable)

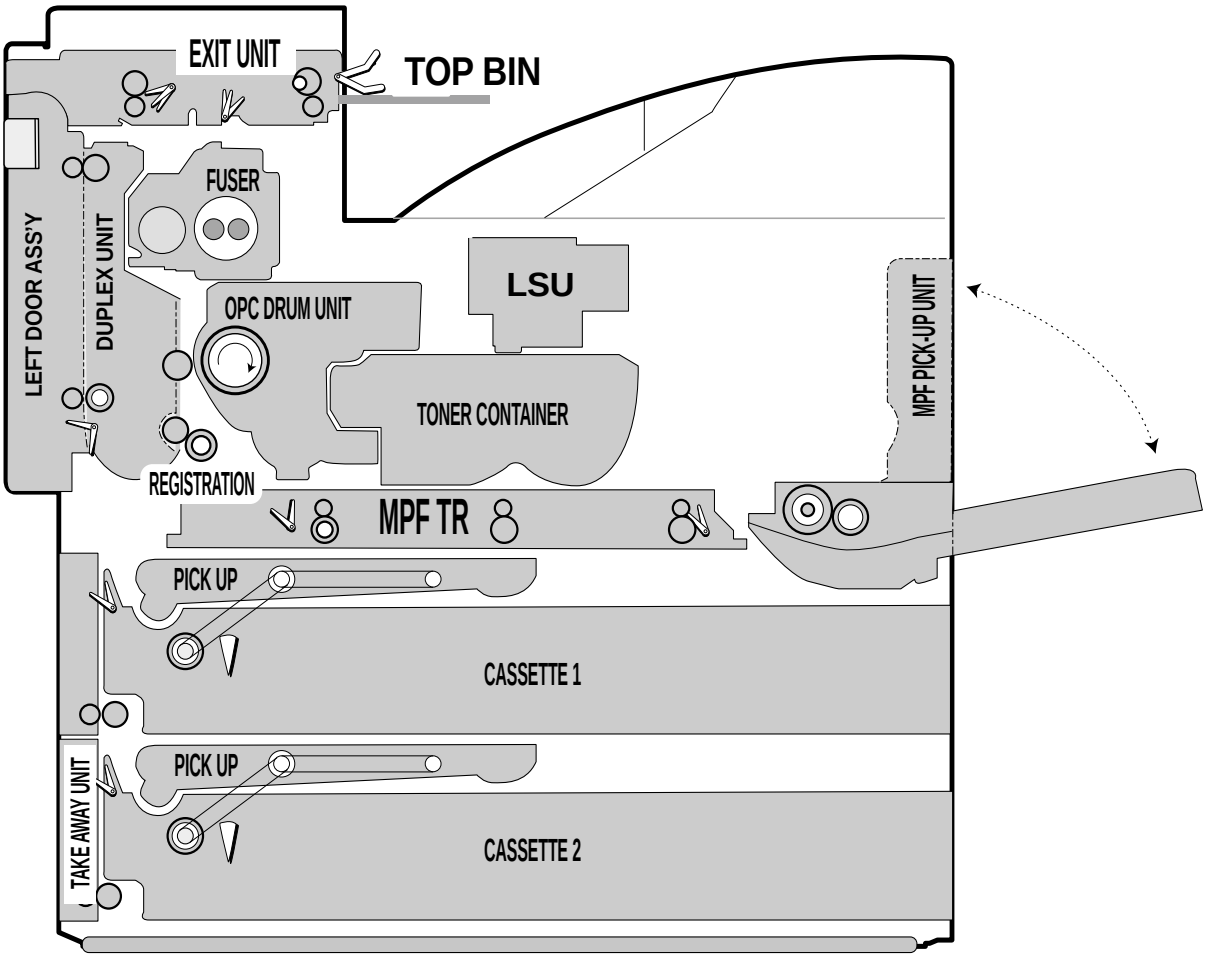


❺ Power Code

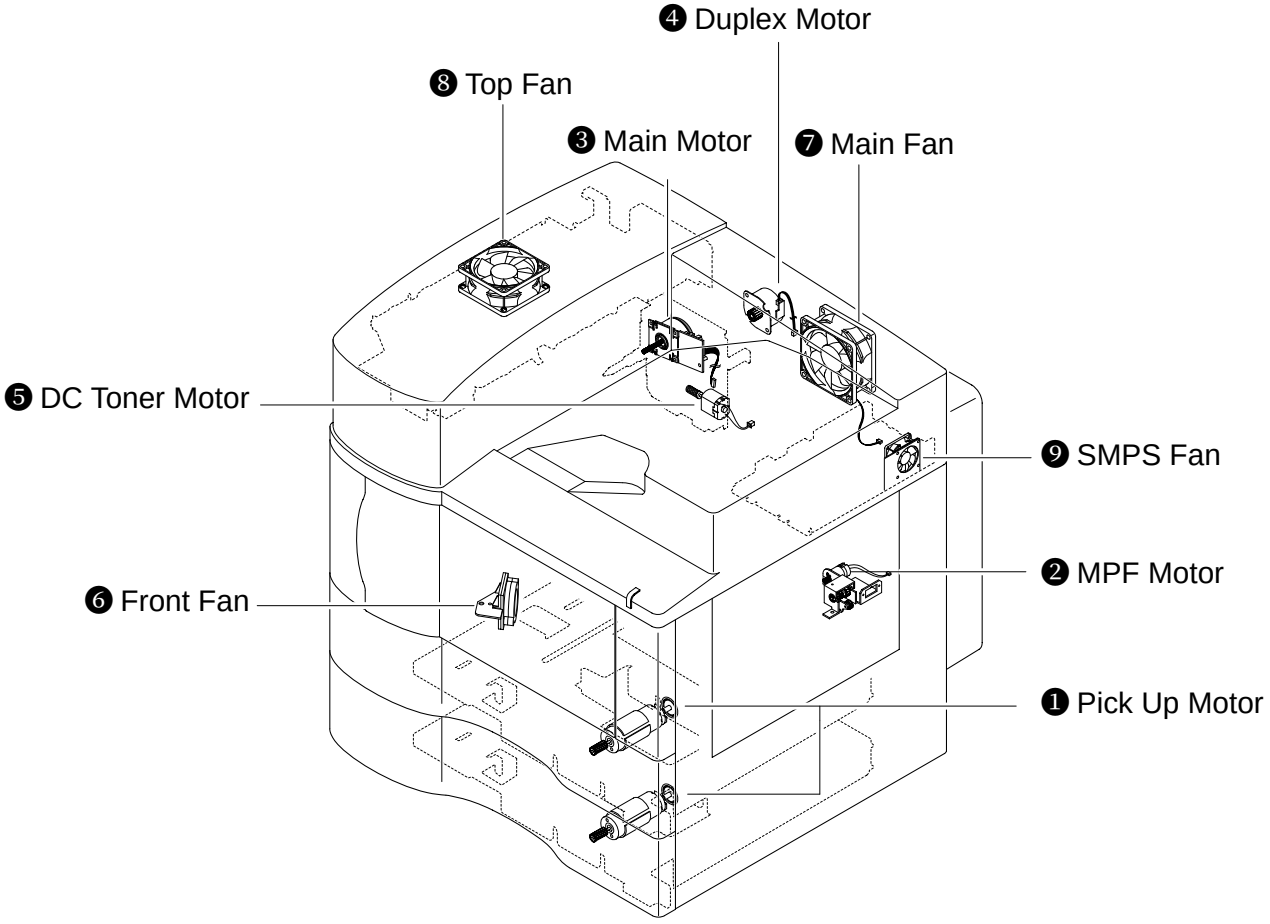


❻ CD ROM

3.4 Construction and operation of the system

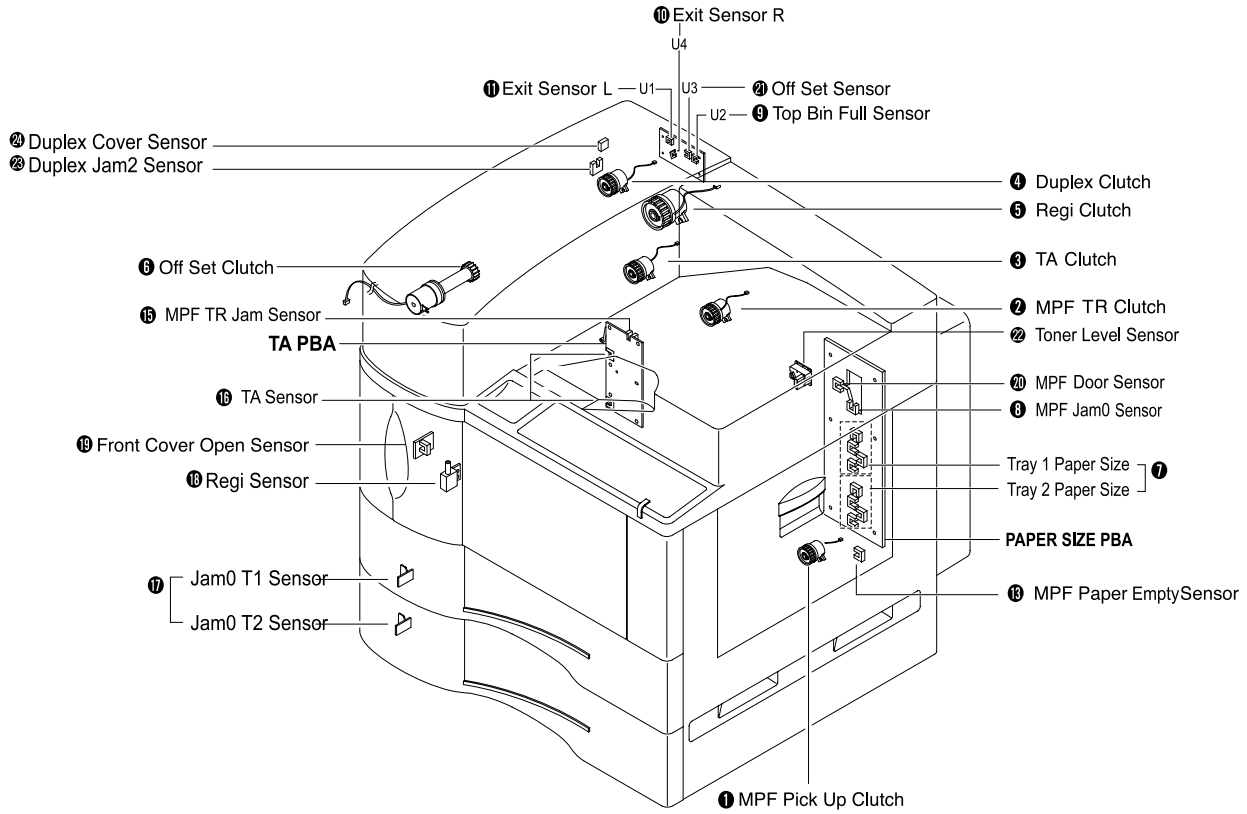


3.4.1 Motor and Fan layout



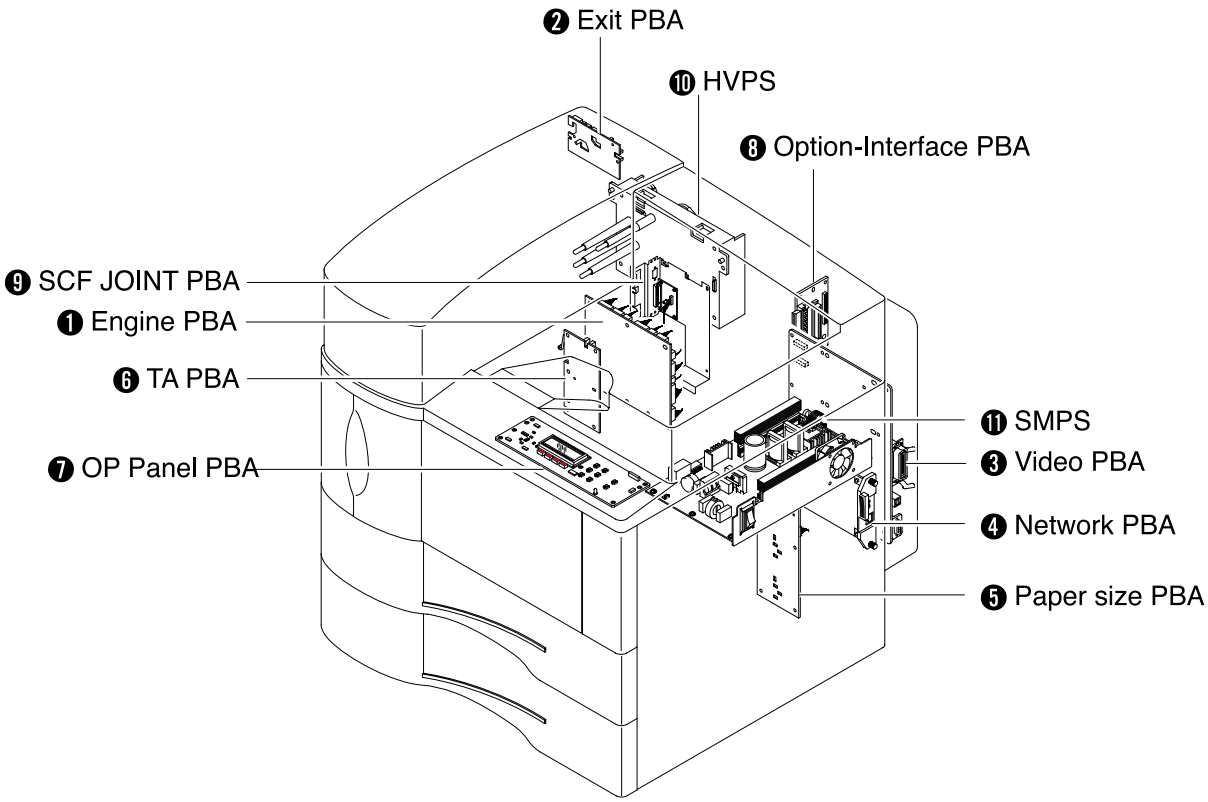
도번	Name	Functions	규 격	품 명
❶	PICK UP MOTOR	Transfers the cassette paper	24V/17.9Ω/6900rpm	AC385XLOT-00E4030
❷	MPF MOTOR	Transfers the MPF paper	30V/19.4Ω/7500rpm	HC385MOT-01E4012
❸	MAIN MOTOR	Rotates the OPC	24V	DNQ 18A88D20A
❹	DUPLEX MOTOR	Transfers papers to the duplex unit for duplex print and paper discharge	24V/4Ω	M49SP-1
❺	DC TONER MOTOR	Supplies toner	24V/59.4Ω/5900rpm	MF203G-00E4039
❻	FRONT FAN	Supplies the air to the inner set	24V/5500rpm	AB5024MB-CO3
❼	MAIN FAN	Discharges the heat from fuser unit to outside	24V/3800rpm	AD0924XB-A73GL
❽	TOP FAN	Supplies the air to the inner set when printing	24V/3800rpm	AD0924XB-A73GL
❾	SMPS FAN	Discharges the heat from SMPS to outside	24V/45rpm	AD 0624MB-A76GL

3.4.2 Sensor and Clutch layout



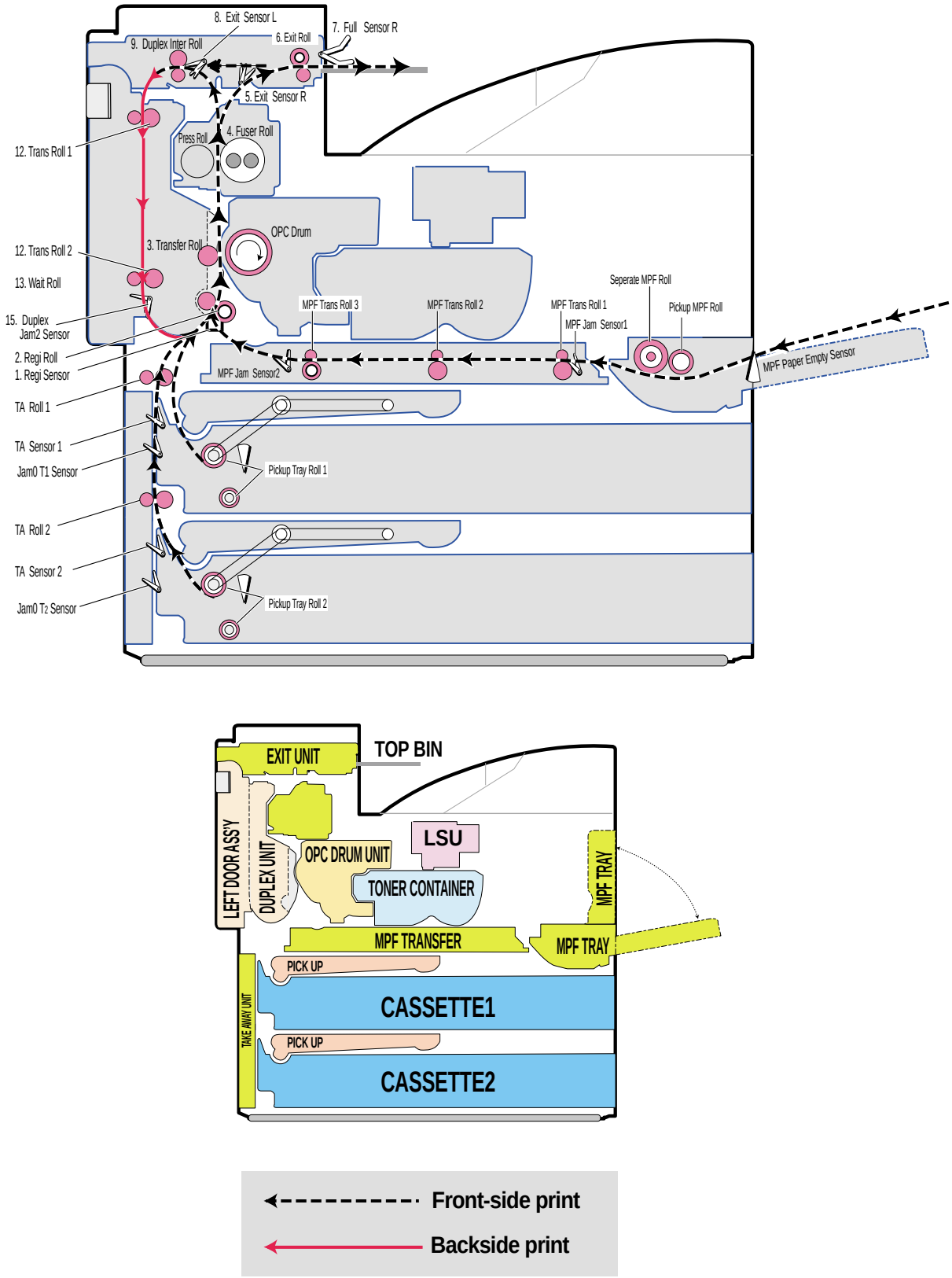
No.	Name	Functions
❶	MPF PICK UP CLUTCH	Drives the MPF Pick Up.
❷	MPF TR CLUTCH	Drives the MPF Transfer Roller.
❸	TA CLUTCH	Transfers the paper to the Registration Sensor.
❹	DUPLEX CLUTCH	Transfers papers from Exit unit to the Duplex Pick up.
❺	REGI CLUTCH	Transfers paper from Registration sensor to the Developer.
❻	OFF SET CLUTCH	Separate and loads papers.
❼	PAPER SIZE SENSOR	Detects paper size.
❽	MPF JAM0 SENSOR	Detects paper jam while it is transferred from pick up to MPF tray.
❾	TOP BIN FULL SENSOR	Detects paper whether it is full.
❿	EXIT SENSOR R	Detects paper jam while paper is transferred from Exit to Top bin direction.
⓫	EXIT SENSOR L	Detects paper jam while paper is transferred from Exit to Left bin direction.
⓬	Left Cover Sensor	Detects Left cover status.
⓭	MPF PAPER SENSOR	Detects paper at MPF whether there is paper or not.
⓮	TA Cover Sensor	Detects status of TA Cover.
⓯	MPF TR JAM SENSOR	Detects paper jam at MPF tray.
⓰	TA SENSOR	Detects paper jam between Jam0sensor and Registration sensor via tray.
⓱	JAM O SENSOR	Detects paper jam while paper is transferred to the registration sensor.
⓲	Regi Sensor	Detects paper jam while paper is transferred from TA Sensor to Exit R Sensor.
⓳	Front Cover Open Sensor	Detects the front cover whether it is closed or opened.
⓴	MPF Door Sensor	Detects MPF Transfer Unit whether it is attached or not.
㉑	Off Set Sensor	Manages the offset location.
㉒	Toner Level Sensor	Detects toner amount (low) in the toner cartridge.
㉓	Duplex Jam Sensor	Detects paper jam between Exit sensor and Registration sensor.
㉔	Duplex Cover Sensor	Detects Duplex cover status.

3.4.3 Board (PBA) layout



No.	Name	Functions
❶	ENGINE PBA	Controls engine functions to print the video data from video controller.
❷	EXIT PBA	It checks the paper discharged from fuser unit.
❸	VIDEO PBA	1) It sends the video data from the host (PC) to the engine for print. 2) Perfomers emulations.
❹	NETWORK PBA	Network card and physical connetion to LAN.
❺	PAPER SIZE PBA	It is a board to drive paper size motor, exit motor, and MPF Pick up motor.
❻	TA PBA	It is a board to operate the clutch. (Drives the tray 1,2, the pick up motor, the TA sensor, etc.)
❼	OP PANEL PBA	It is a board to display the set status.
❽	OPTION-INTERFACE PBA	1) It interfaces with the HDD for storing data. 2) It interfaces with Operation panel.
❾	SCF JOINT PBA	It is a board to connect the engine board to the SCF.
❿	HVPS	Provides high voltage to the electrostatic print process unit.
⓫	SMPS	Supplies power to all DC power and AC power circuits.

3.5 Operation



3.5.1 Developing process

The developing process consists of the drum cartridge and the toner cartridge. It allows the creation of a visual image.

- Developing method : Two components magnetic developing method.
- Checking Existence or nonexistence of developer unit: The MICOM chip verifiies status of developer. If the developing unit is not attached the message will be displayed.
- Checking life span of consumption parts

  ① The life span of the drum cartridge: 50,000 sheets (A4 5% pattern standard)

  - Life span check : The running count is always stored in the MICOM in the Deve_ID board attached to the drum cartridge. When a service report file is outputted, the counter is displayed at the development cartridge under consumables status (Remainder).

  ② The life span of the toner cartridge: 25,000 sheets (A4 5% pattern standard)

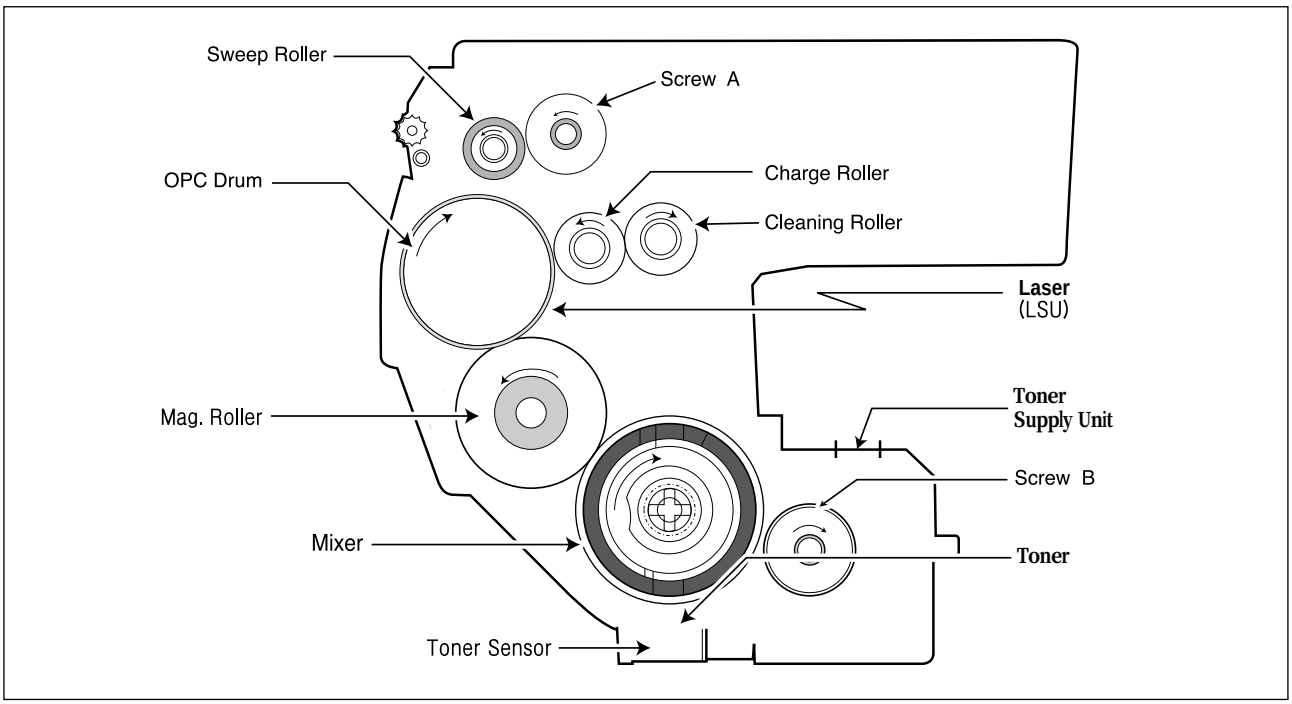
  - Life span check : The running count is always stored in the MICOM in the Toner_ID board attached to the outside of the toner cartridge. When a service report file is outputted, the counter is displayed at the Toner Remainder under consumables status (Remainder)

- Checking toner density

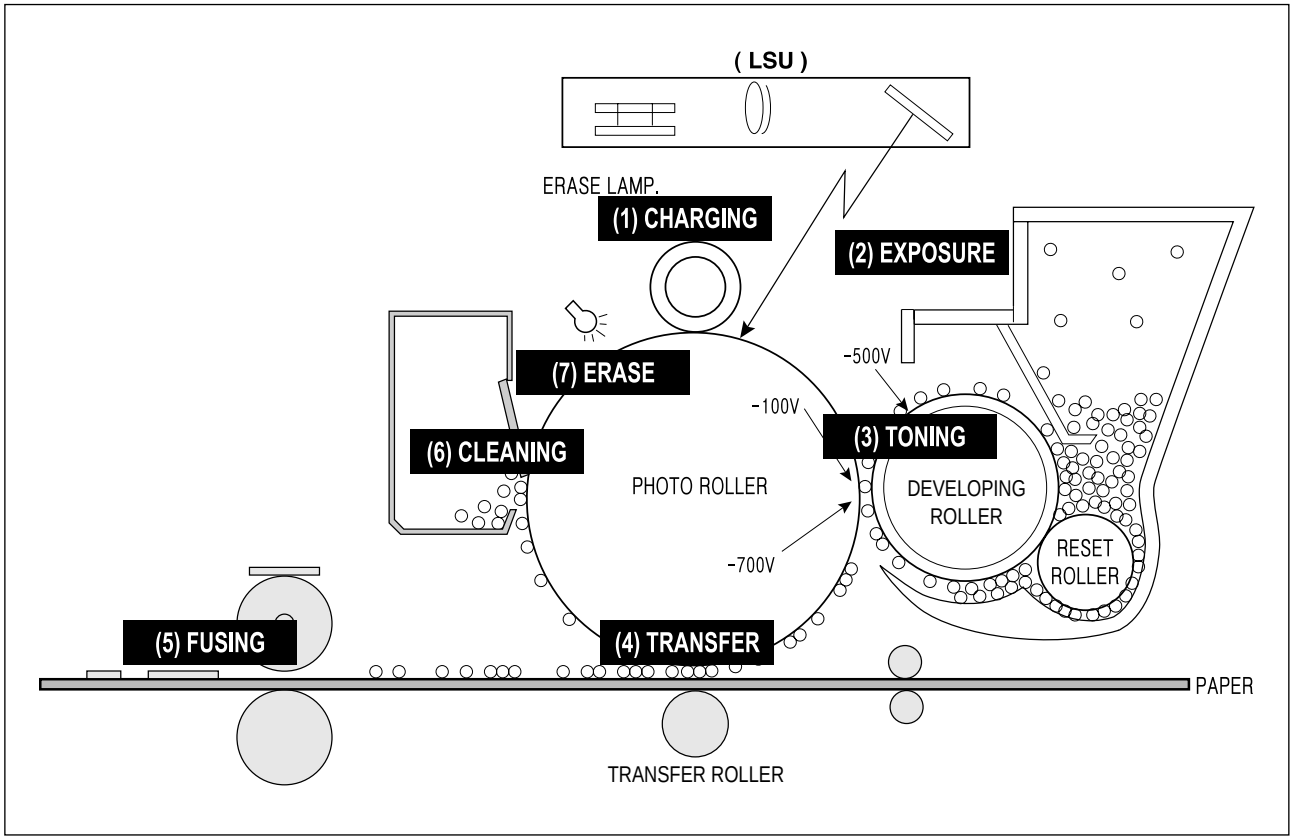
  ① By using the toner sensor, which detects the supplying changes according to the toner's and carrier's mixing rate, the machine detects and displays toner emptiness.

  ② The toner density is evenly maintained by checking the toner density level. The toner density level is checked with the duty of V dig output. (If the density is low, drives the toner motor to supply toner)

  ③ Toner Sensor : Rated input voltage : DC 24V
  Vcont Voltage : DC 2~12V Possibly change
  Vod : Digital
  Voa : Analog



<Drum cartridge organization diagram>

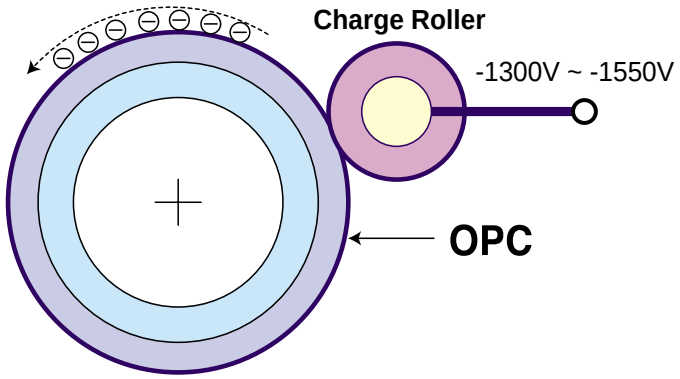


<Developing Process>

(1) Charging process

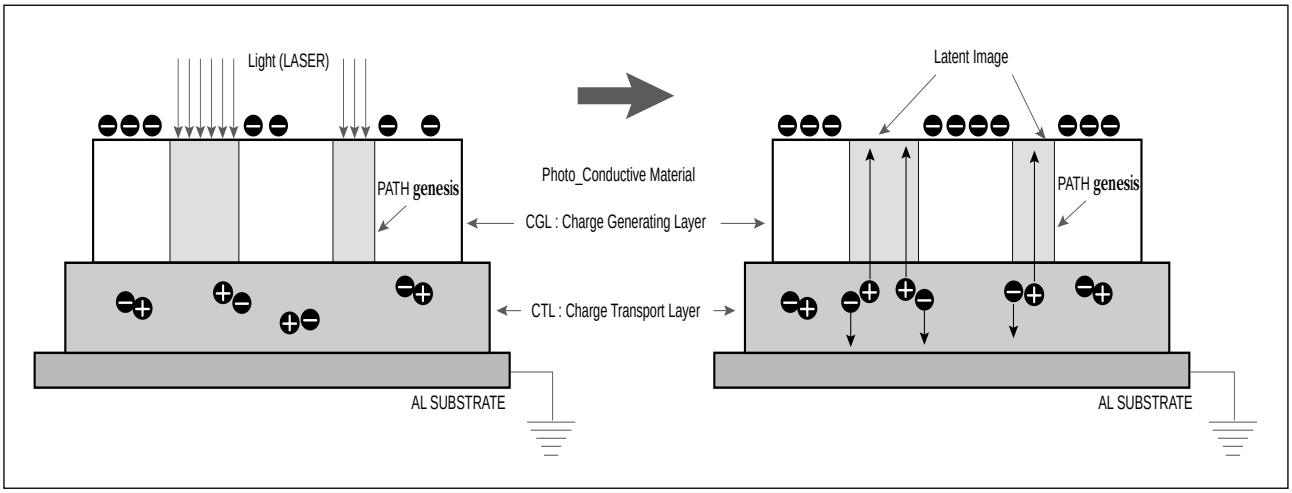
It is the first step of electronic photo process. The surface of the OPC is evenly charged with a negitive (-) voltage to preparing for the next laser exposure. When a negitive (-1300V~-1550V) volts is reached on the charge roller, the surface of the OPC should be charged to about a negitive (-700V) volts.

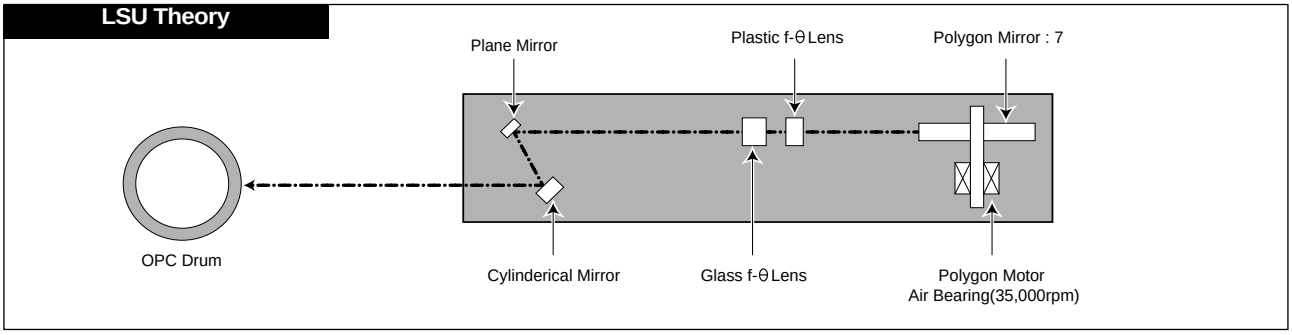
This is the first step to create the electrostatic photo process.

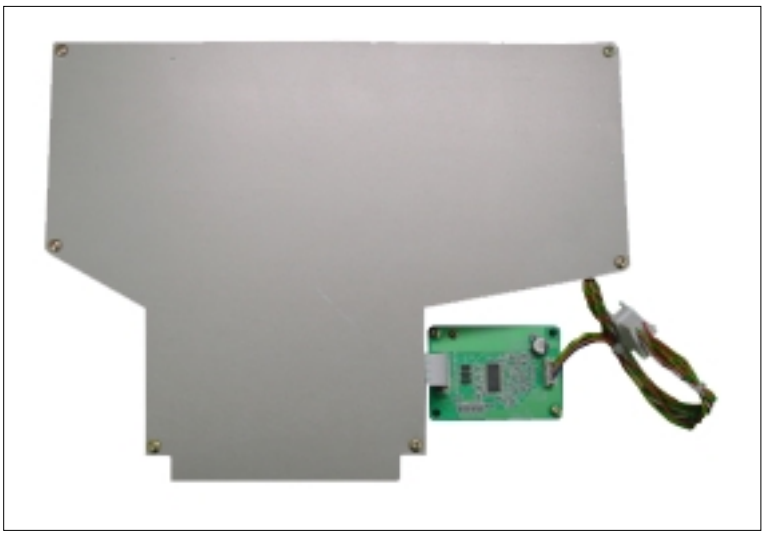


(2) Exposure process

The exposure process creates an image on the drum. The video board enables the LSU (Laser Scan Unit) to expose the drum. At this point the image is invisible. This electric image is created on the surface of the OPC. As the drum is exposed by light, a path is created on CTL layer, and through it, negitive charged particles in the CGL layer move to erase the charge on the exposed section, and the latent image is created. The AL Substrate must be grounded for smooth movement of positive charges.







< LSU Unit>

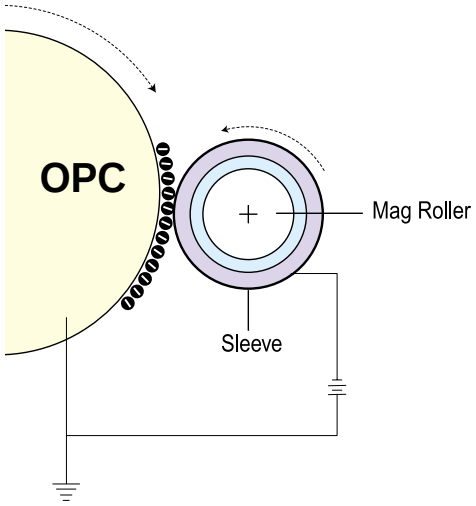
The LSU unit is controlled by the video controller. It scans the video data received from video controller with laser beam by using the rotation principal of the polygon mirror to create the latent image on the OPC drum. It is the core part of LBP.

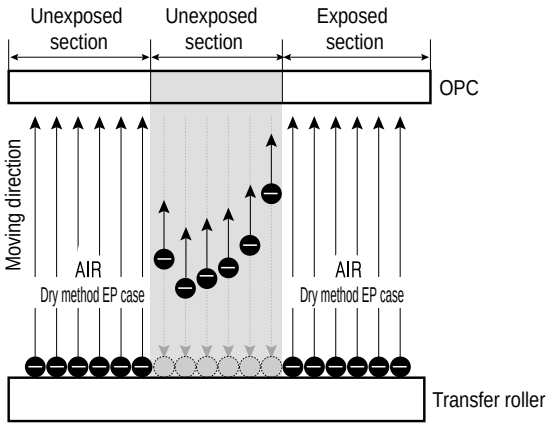
- Resolution : 600 X 600 DPI
- Scanning width : A3

(3) Development Process

The development process moves the toner particle to the latent image created in the exposure process. After this step, the image will be visible on the drum surface. The latent image is a more positive voltage and therefore the more negitive charged toner is attracted to exposed portions of the drum. The developing voltage should be lower than the unexposed section and higher than exposed section. (The density is controlled by this voltage.)

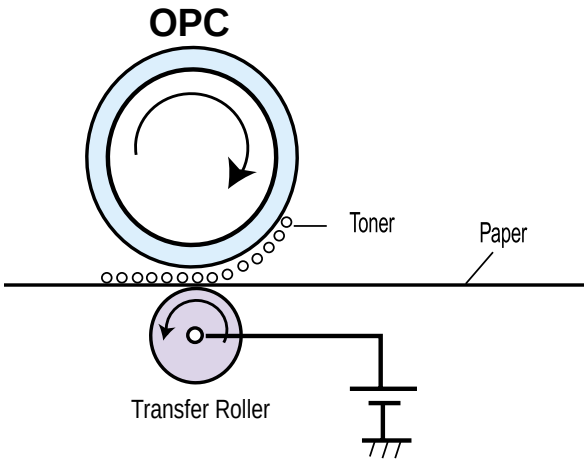
As the picture shown in the below, the electronic field is formed, and the negitive charged toner moves to the OPC.
The picture is shown the dry method EP case.

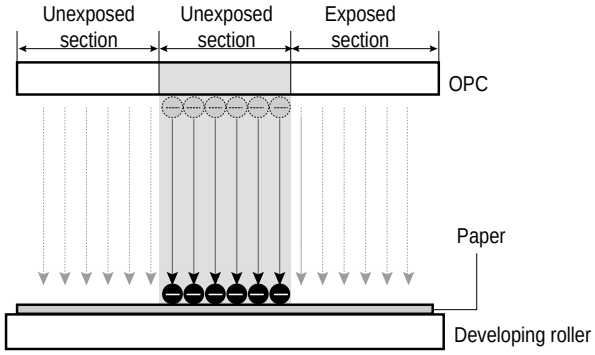




(4) Image Transferring Process

The transfer process "transfers" or moves the toner from the image on the drum to the paper. This is accomplished by attracting the toner from the drum to the positively charged transfer roller. The voltage is changed by environmental conditions such as temperature, humidity, etc. At this point the image is still "wet copy". The toner is only held to the paper electrostaticly. The toner can be brushed off.



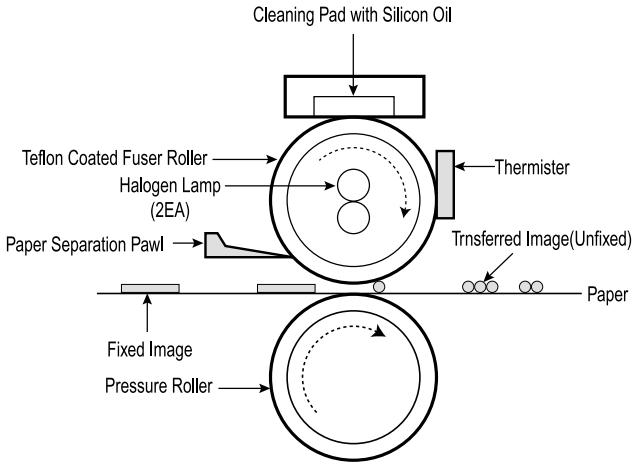


(5) Fusing Process

Fusing or Fixing is accomplished by using both heat and pressure. Heating and pressure adhears the toner to the paper.

While the toner on the paper is passing the fuser, the toner is melted and adhered to the paper by heat and pressure.
In the fusing process, temperature, pressure, and passing time are important. Usually, temperature is 140~160 ˚C, and the NIP width is taken 2~5 mm more to get longer contacting time. The thermistor controls the temperature of the fuser roller.
The temperature ±5 ˚C in norma to properly fix the toner to the paper.

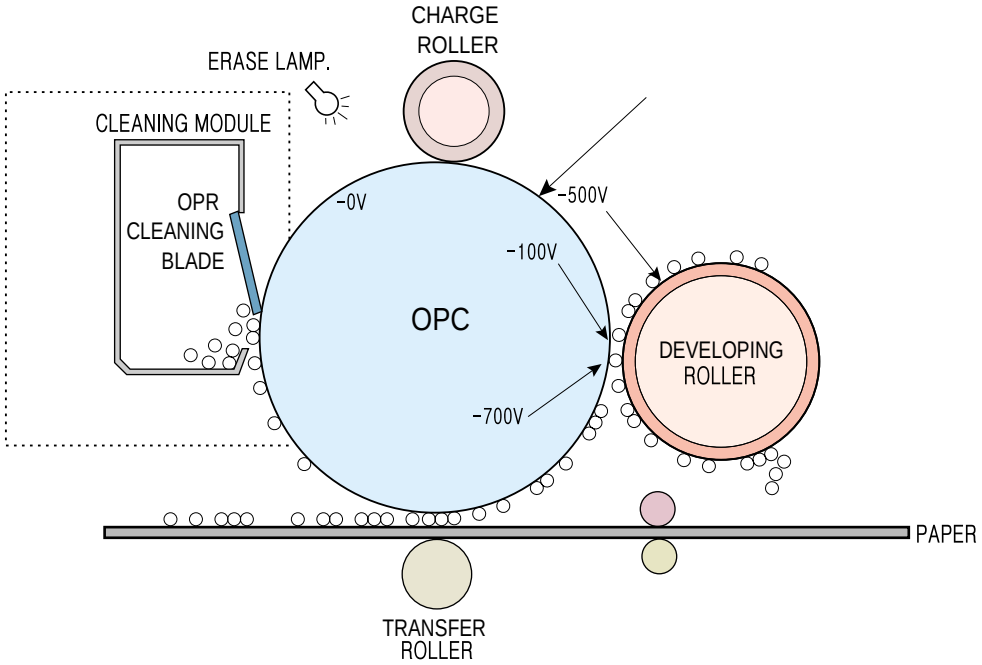
To prevent adirty fuser roller, clean the surface of the fuser roller with the cleaning pad and silicon oil.
The Separation Pawl is used to prevent the roll-up of paper.



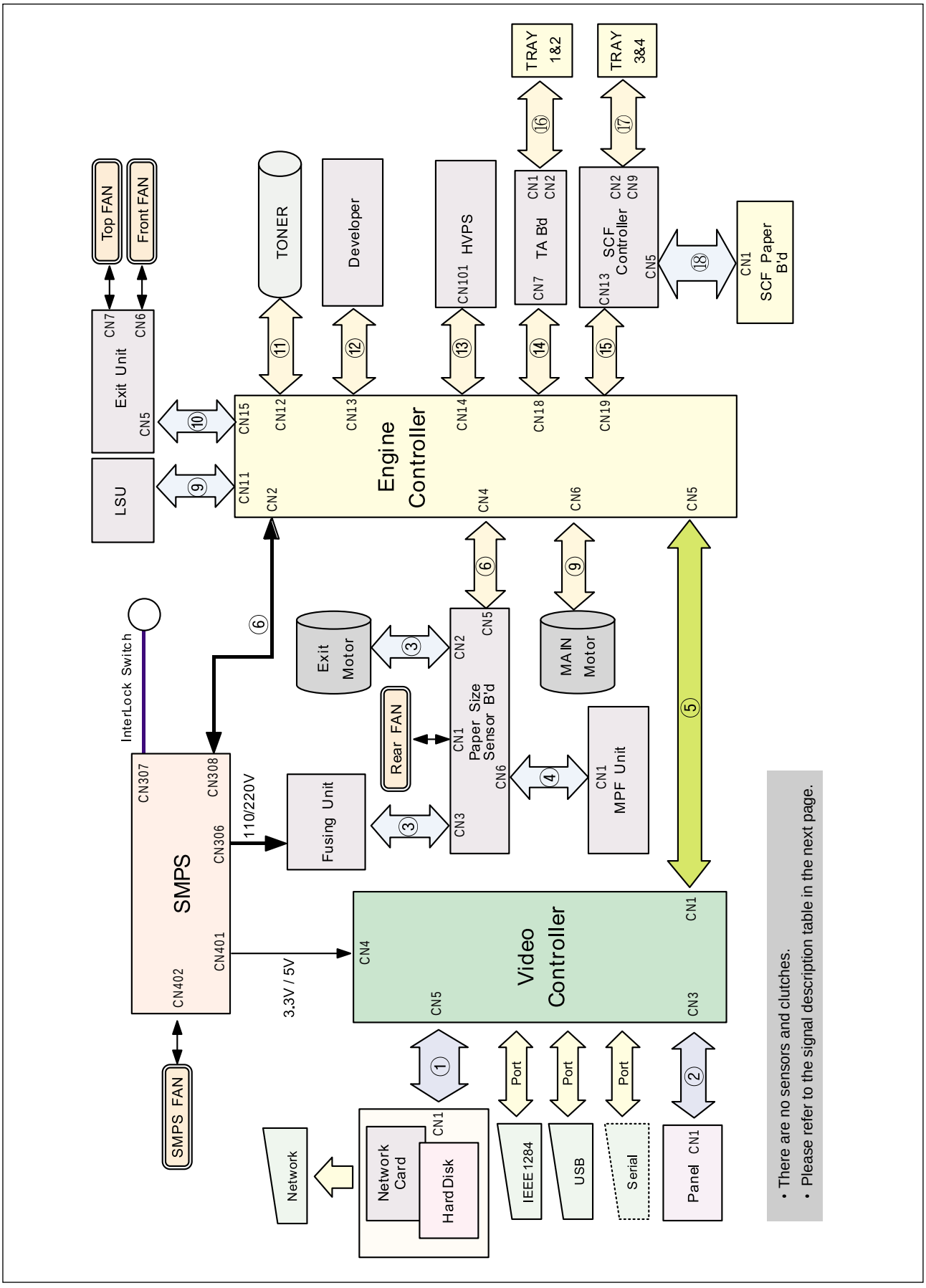
- Fusing method : Pressure fusing method. It has Heater lamp, Heat roller, pressure roller, etc.
- Heater lamp consisted of the Main lamp and the sub lamp both are halogen lamps.
- Thermostat :The thermostat is a bi-polar metal that opens to prevent over heating.
- Overheat prevention : If the thermistor detects over 200 °C, the heater is off by using OP AMP. (TRIAC and Relay off)

(6) Cleaning process and Erase process

This step removes the remaining charge and the toner particles from the OPC. In the cleaning process, the remaining toner on the OPC is cleaned by the cleaning blade and by the erase process. The remaining charges on the OPC are erased.
The LED is used for the erase lamp. In case to use OPR (Organic Photo_Receiptor) for OPC, the wave-length is around 640~680nm.
Light must be handled perfectly not to interrupt the other processes.



3.5.2 CONNECTION DIAGRAM



• Signal Description Table

① Video ↔ Vertical(HDD&Network)

Pin	Signal Name	Pin	Signal Name
1	DRAMD X(16)	1	DRAMD X(16)
2	DRAMD X(17)	2	DRAMD X(17)
3	DRAMD X(18)	3	DRAMD X(18)
4	DRAMD X(19)	4	DRAMD X(19)
5	DRAMD X(20)	5	DRAMD X(20)
6	DRAMD X(21)	6	DRAMD X(21)
7	DRAMD X(22)	7	DRAMD X(22)
8	DRAMD X(23)	8	DRAMD X(23)
9	HDD_RST*	9	HDD_RST*
10	nHDD_DMARQ	10	nHDD_DMARQ
11	nDRAMWE_HDD	11	nDRAMWE_HDD
12	S_DRAMA(2)	12	S_DRAMA(2)
13	S_DRAMA(1)	13	S_DRAMA(1)
14	S_DRAMA(0)	14	S_DRAMA(0)
15	VCC	15	VCC
16	VCC	16	VCC
17	VCC	17	VCC
18	VCC	18	VCC
19	GND	19	GND
20	GND	20	GND
21	nNETWORK_CS	21	nNETWORK_CS
22	nWAIT	22	nWAIT
23	DPO_RST*	23	DPO_RST*
24	nNETWORK_IRQ	24	nNETWORK_IRQ
25	nDATA(31)	25	nDATA(31)
26	nDATA(30)	26	nDATA(30)
27	nDATA(29)	27	nDATA(29)
28	nDATA(28)	28	nDATA(28)
29	nDATA(27)	29	nDATA(27)
30	nDATA(26)	30	nDATA(26)
31	nDATA(25)	31	nDATA(25)
32	nDATA(24)	32	nDATA(24)
33	nDATA(23)	33	nDATA(23)
34	nDATA(22)	34	nDATA(22)
35	nDATA(21)	35	nDATA(21)
36	nDATA(20)	36	nDATA(20)
37	nDATA(19)	37	nDATA(19)
38	nDATA(18)	38	nDATA(18)
39	nDATA(17)	39	nDATA(17)
40	nDATA(16)	40	nDATA(16)

Pin	Signal Name	Pin	Signal Name
41	DRAMD X(24)	41	DRAMD X(24)
42	DRAMD X(25)	42	DRAMD X(25)
43	DRAMD X(26)	43	DRAMD X(26)
44	DRAMD X(27)	44	DRAMD X(27)
45	DRAMD X(28)	45	DRAMD X(28)
46	DRAMD X(29)	46	DRAMD X(29)
47	DRAMD X(30)	47	DRAMD X(30)
48	DRAMD X(31)	48	DRAMD X(31)
49	DASP	49	DASP
50	nDRAMOE	50	nDRAMOE
51	HDD_IORDY	51	HDD_IORDY
52	nHDD_DMAACK	52	nHDD_DMAACK
53	nHDD_IRQ	53	nHDD_IRQ
54	PDIAG	54	PDIAG
55	CS0	55	CS0
56	CS1	56	CS1
57	GND	57	GND
58	GND	58	GND
59	GND	59	GND
60	BRDIN*	60	BRDIN*
61	NT_nRD	61	NT_nRD
62	NT_nWR	62	NT_nWR
63	NT_TT1	63	NT_TT1
64	NT ADDR(2)	64	NT ADDR(2)
65	NT ADDR(3)	65	NT ADDR(3)
66	NT ADDR(4)	66	NT ADDR(4)
67	NT ADDR(5)	67	NT ADDR(5)
68	NT ADDR(6)	68	NT ADDR(6)
69	NT ADDR(7)	69	NT ADDR(7)
70	NT ADDR(8)	70	NT ADDR(8)
71	NT ADDR(9)	71	NT ADDR(9)
72	NT ADDR(10)	72	NT ADDR(10)
73	NT ADDR(11)	73	NT ADDR(11)
74	NT ADDR(12)	74	NT ADDR(12)
75	NT ADDR(13)	75	NT ADDR(13)
76	NT ADDR(14)	76	NT ADDR(14)
77	NT ADDR(15)	77	NT ADDR(15)
78	NT ADDR(16)	78	NT ADDR(16)
79	NT ADDR(17)	79	NT ADDR(17)
80	NT ADDR(18)	80	NT ADDR(18)

② Video ↔ Panel

Pin	Signal Name	Pin	Signal Name
1	VCC	1	←
2	VCC	2	←
3	PANEL_MSG	3	←
4	PANEL_CMD	4	←
5	LCD_DRV_EN	5	←
6	RESET_LCD	6	←
7	ERROR_LED	7	LCD_LED0
8	ON_LINE_LED	8	PRINTER_ERR
9	GND	9	←
10	GND	10	←
11	GND	11	←

③ PaperSize ↔ Fusing Unit

Pin	Signal Name	Pin	Signal Name
1	24VS	1	←
2	N.C	2	←
3	FU_FANON	3	←
4	N.C	4	←
5	FU_FANFB	5	←

④ PaperSize ↔ MPF Unit

Pin	Signal Name	Pin	Signal Name
1	5V	1	←
2	DGND	2	←
3	DGND	3	←
4	24VS	4	←
5	MPF_PE*	5	←
6	MPF_PICKUP	6	MPF_PICK_CLUT

⑤ Video ↔ Engine

Pin	Signal Name	Pin	Signal Name
1	ENGINE_MSG	1	EMSG*
2	nPRINT	2	PRINT*
3	EVIDEO+	3	←
4	EVIDEO-	4	←
5	RDY*	5	←
6	LSYNC+	6	←
7	LSYNC-	7	←
8	ENGINE_CMD	8	CMSG*
9	nFSYNC	9	PSYNCRQ*
10	nENDPAGE	10	END_PAGE
11	GND	11	←

⑥ SMPS ↔ Engine

Pin	Signal Name	Pin	Signal Name
1	12V	2	←
2	12V GND	1	DGND
3	3.3V	4	3.3VB
4	3.3V GND	3	DGND
5	-5V	6	←
6	-5V GND	7	DGND
7	5.1V GND	8	DGND
8	5.1V GND	7	DGND
9	5.1V	10	5V
10	5.1V GND	9	DGND
11	5.1V	12	5V
12	5.1V	11	5V
13	24VS	14	←

Pin	Signal Name	Pin	Signal Name
14	24VS	13	←
15	24VS GND	16	←
16	24VS GND	15	←
17	24V GND	18	←
18	24V GND	17	←
19	24V	20	←
20	24V	19	←
21	24V	22	←
22	FAN-FB	21	FAN_FBP
23	RLY-CON	24	RELAY_CON*
24	FAN-CON	23	FAN_PS
25	HT2	26	HEAT2_ON
26	HT1	25	HEAT1_ON

⑦ Exit Motor ↔ PaperSize

Pin	Signal Name	Pin	Signal Name
1	1A	1	←
2	1B	2	←
3	2A	3	←
4	2B	4	←

⑧ PaperSize ↔ Engine

Pin	Signal Name	Pin	Signal Name
11	24V	2	←
2	24V	1	←
3	DPX_MA	4	←
4	MPF_DOOR*	3	←
5	DPX_MA*	6	←
6	MPF_JAM1	5	←
7	DPX_MB	8	←
8	MPF_MOTON	7	MPF_MOTON*
9	DPX_MB*	10	←
10	MPF_PE*	9	←
11	THERMISTER1	12	THERM
12	MPF_PICKUP	11	MPF_PICKUP*
13	THERMISTER2	14	HEAT_ON
14	5V	13	←
15	FU_FANON	16	←
16	5V	15	←
17	FU_FANFB	18	←
18	T1_SIZE0*	17	←
19	T2_SIZE0*	20	←
20	T1_SIZE1*	19	←
21	T2_SIZE2*	21	←
22	T1_SIZE2*	22	←
23	T2_SIZE2*	24	←
24	T1_SIZE3*	23	←
25	DGND	26	←
26	T2_SIZE3*	25	←
27	DGND	28	←
28	DGND	27	←

⑨ LSU ↔ Engine

Pin	Signal Name	Pin	Signal Name
1	5V	1	5VL
2	GND	2	DGND
3	LD_POWER	3	LD_POWER_OUT
4	GND	4	DGND
5	LD_ENB*	5	LD_EN*
6	GND	6	DGND
7	SPL*/HLD	7	LS_SHR
8	GND	8	DGND
9	VIDEO(+)	9	VDO+
10	VIDEO(-)	10	VDP-
11	GND	11	DGND
12	HSYNC(+)	12	HSYNC+
13	HSYNC(-)	13	HSYNC-
14	LMREFCLK*	14	EXT_CLK
15	LMLOCK*	15	LREADY*
16	LMSTART*	16	LSU_MOTON*
17	GND	17	DGND
18	24V	18	←

⑩ EXIT ↔ ENGINE

Pin	Signal Name	Pin	Signal Name
1	24V	2	←
2	5V	1	←
3	DPX_SOL	4	←
4	DPV	3	DPX_EN
5	EXIT_GATE	6	←
6	OFF_SOL	5	←
7	EXITSEN_R*	8	←
8	EXITSEN_L*	7	←
9	FULLSEN_R*	10	←
10	FULLSEN_L*	9	←
11	DGND	12	←
12	OFF_SEN*	11	OFF_CAT_SEN*
13	FAN_FRONT FB	14	FAN_FBF
14	FAN_FRONT	13	FAN_F
15	FAN_TOP FB	16	FAN_FBR
16	FAN_TOP	15	FAN_R
17	DGND	18	←
18	DGND	17	←

⑪ TONER ↔ ENGINE

Pin	Signal Name	Pin	Signal Name
1	5V	1	TONER_OPEN(5VL)
2	5V	2	←
3	TEP_DIO	3	←
4	DGND	4	←
5	DGND	5	←
6	DGND	6	←
		7	NC

⑫ DEVELOPER ↔ ENGINE

Pin	Signal Name	Pin	Signal Name
1	DEV_OPEN(5VT)	1	←
2	5V	2	←
3	DGND	3	←
4	DGND	4	←
5	DEP_DIO	5	←
6	TNR_VOA	6	←
7	TNR_VOD	7	←
8	DGND	8	←
9	12V	9	←
10	24V	10	←
11	LAMP_ON*	11	←
12	24V	12	←

⑬ HVPS ↔ ENGINE

Pin	Signal Name	Pin	Signal Name
1	POWER SAVE	2	HV_PS
2	5V	1	←
3	GND	4	←
4	THV_READ	3	THVRED
5	GND	6	←
6	MHV_READ	5	MHVRED
7	FUBIAS	8	←
8	THV_EN	7	THVEN*
9	DETACH	10	←
10	THV_PWM	9	←
11	MHV_PWM	12	←
12	DEV	11	DEV_CON1
13	-5V	14	←
14	24VS1	13	24V
15	GND	16	←
16	GND	15	←

⑭ TA B'd ↔ ENGINE

Pin	Signal Name	Pin	Signal Name
1	24V	2	←
2	24V	1	←
3	LEFT_DOOR*	4	←
4	TA_CLUT*	3	←
5	REGICLUTION	6	REGICLUTION*
6	MPF_CLUT*	5	←
7	5V	8	←
8	DPX_CLUT*	7	←
9	DPX_JAM*	10	←
10	DGND	9	←
11	T2_TA_S*	12	←
12	T1_TA_S*	11	←
13	T1_MOT*	14	←
14	MPF_JAM2*	13	←
15	3.3V	16	←
16	T1_SOL*	15	←
17	DGND	18	←
18	T1_P_EMP	17	←
19	T2_SOL*	20	←
20	T2_MOT*	19	←
21	DGND	22	←
22	T2_P_EMP	21	←
23	T2_ES	24	←
24	T1_ES	23	←

⑮ SCF CON ↔ ENGINE

Pin	Signal Name	Pin	Signal Name
1	24V	1	←
2	24V	2	←
3	DGND	3	BE_MSG
4	24V	4	←
5	DGND	5	←
6	DGND	6	←
7	5V	7	←
8	5V	8	←
9	DGND	9	BIN_2
10	5V	10	←
11	DGND	11	EC_MSG
12	ES_MSG	12	←
13	DGND	13	BIN_1
14	SCF_DOOR*	14	SCF_DOOR
15	DGND	15	BIN_3
16	SE_MSG	16	←
17	DGND	17	←
18	SCF_TA	18	←
19	DGND	19	←
20	DGND	20	←

⑯ TA B'd ↔ TRAY 1&2

Pin	Signal Name	Pin	Signal Name
1	DGND	1	←
2	T1_P_EMP	2	←
3	3.3V	3	←
4	T1_SOL*	4	←
5	24V	5	←
6	T1_PB	6	←
7	24V	7	←
8	5V	8	←
9	DGND	9	←
10	T1_ES	10	←

⑰ SCF CON ↔ TRAY 3&4

Pin	Signal Name	Pin	Signal Name
1	DGND	1	←
2	T1_P_EMP	2	←
3	3.3V	3	←
4	T1_SOL*	4	←
5	24V	5	←
6	T1_PB	6	←
7	24V	7	←
8	5V	8	←
9	DGND	9	←
10	T1_ES	10	←

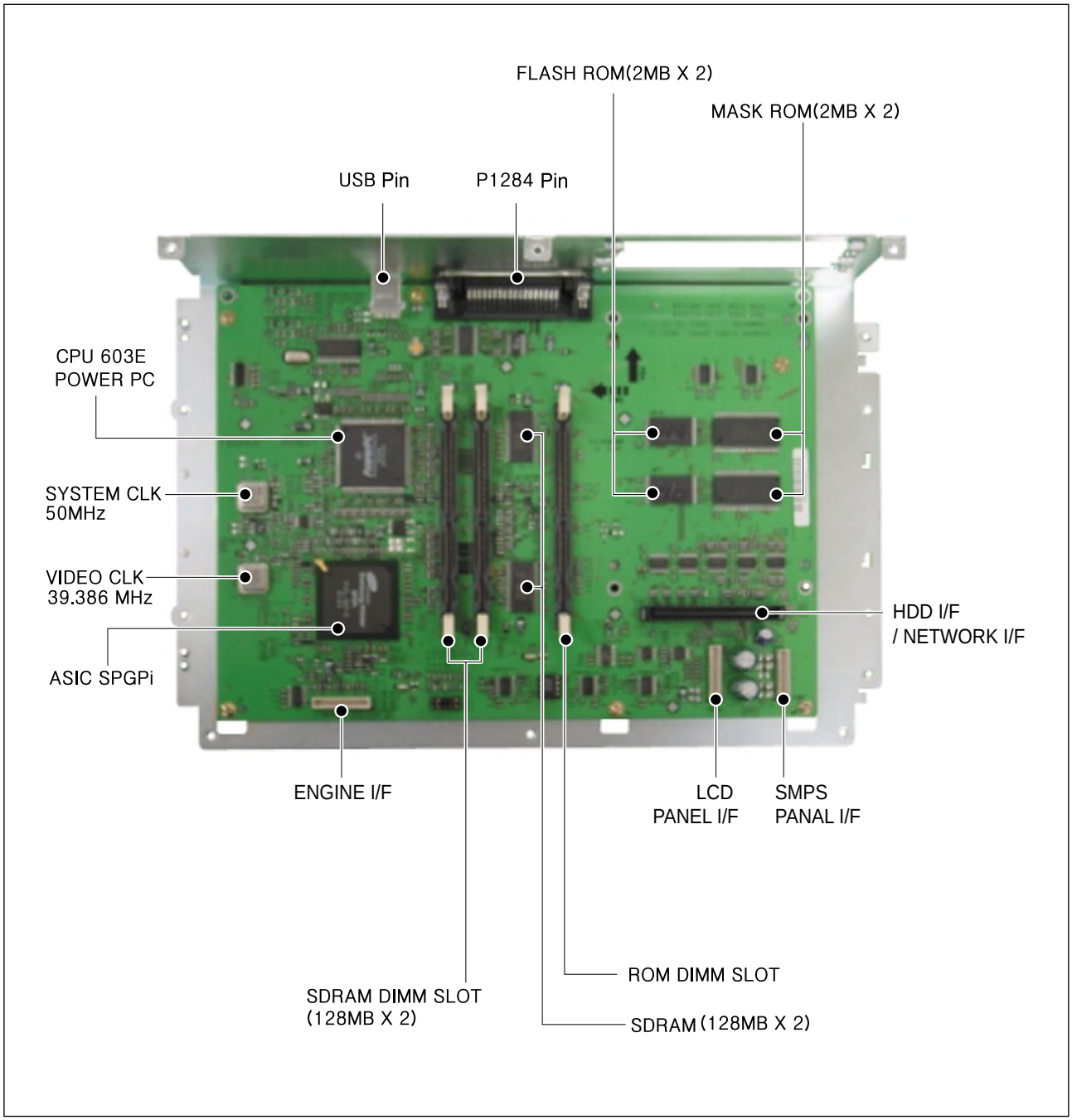
⑱ SCF CON ↔ SCF PAPER

Pin	Signal Name	Pin	Signal Name
1	5V	1	←
2	5V	2	←
3	T1_1	3	T1_SIZE0*
4	T1_2	4	T1_SIZE1*
5	T1_3	5	T1_SIZE2*
6	T1_4	6	T1_SIZE3*
7	T2_1	7	T2_SIZE0*
8	T2_2	8	T2_SIZE1*
9	T2_3	9	T2_SIZE2*
10	T2_4	10	T2_SIZE3*
11	GND	11	←
12	GND	12	←

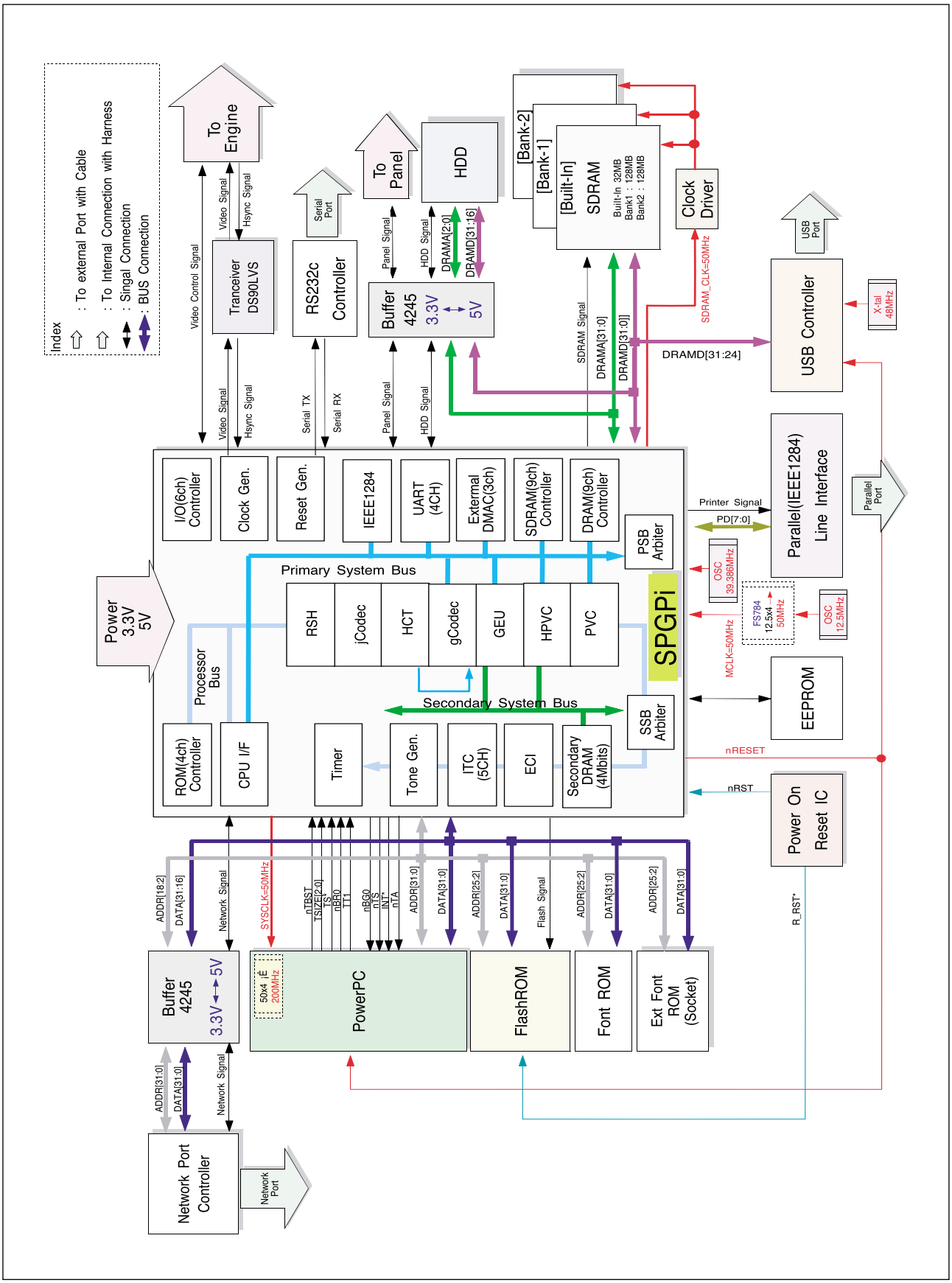
3.5.3 Video controller

1) It sends the video data from Host (PC) to the engine to print and operates the all sorts of emulation.
2) It interfaces with HDD for storing data.
3) It interfaces with the operation panel.

>>> Video Controller Electrical Part Layout



>>> Video Controller Block Diagram



<Construction of the developer>

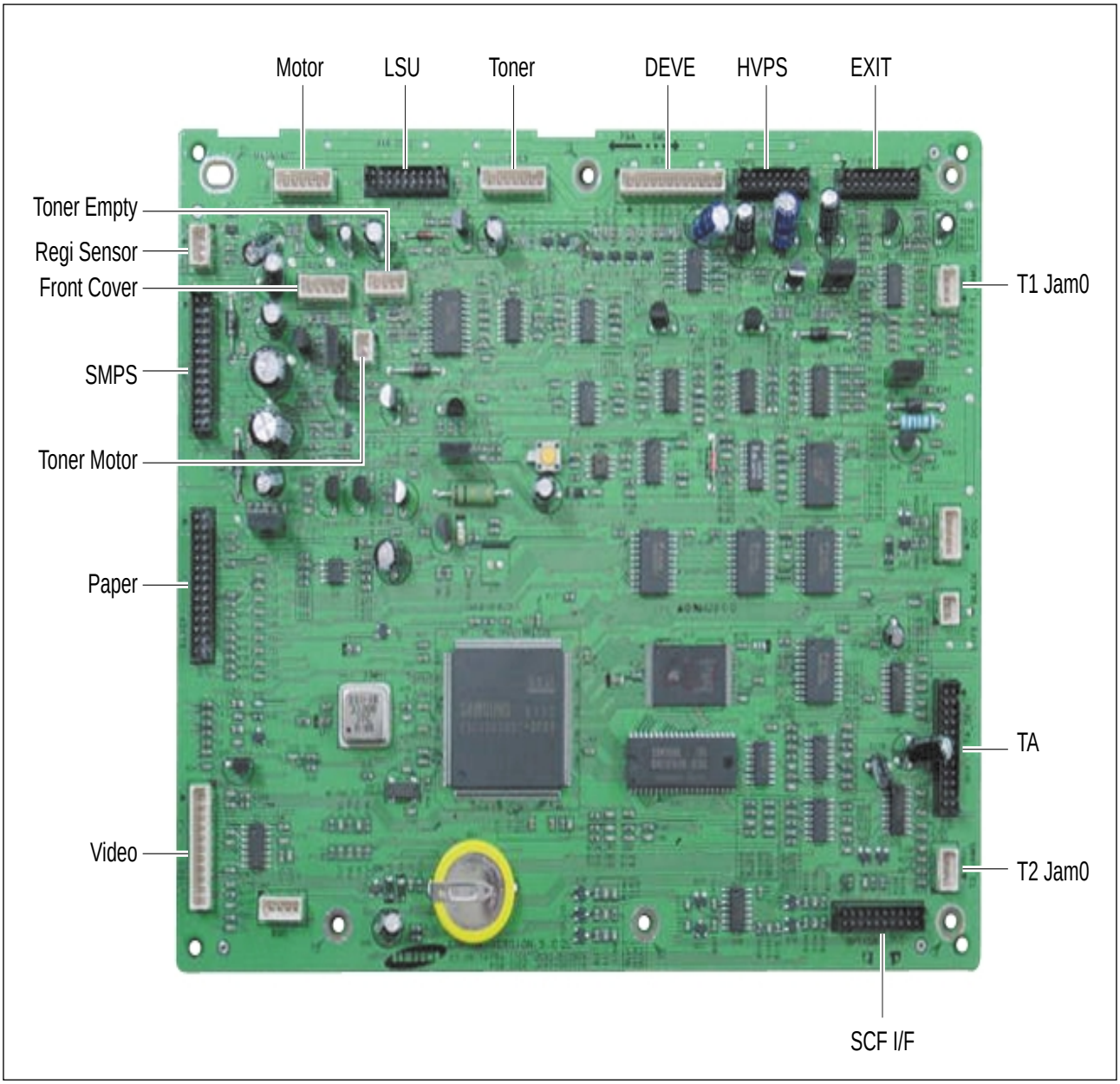
>>> Video controller capacity

Item	Type
PROCESSOR(CPU)	• MOTOLORA POWER PC 603EI • PROCESSOR SPEED : 266 MHZ
SPGPi	• 50MHz operation • 1200 dpi or 600 dpi engine, 1200 dpi bypass mode • Built in 2 Data Compression Codecs (GEU Codec, JBIG Codec) • Seperated internal Microbus (not fixed) / Arbiter • AMBA / PowerPC bus Interface (1/2 system clock frrequency-33MHz) • Expanded GEU (Graphic Execution Unit) • Printer Resolution Enhancement Function with PVC • Peripherals (UART,IEEE1284,2 DMACs,ITC,Timer,ECI,I/O & ROM Controller) • DRAM Controller (EDO, SDRAM) • Extended I/O Interface for External IO Processor
MEMORY	• SDRAM : 32MB (Basic) 64MB,128MB (SLOT 1 : OPTION) 64MB,128MB (SLOT 2 : OPTION)
EMULATION	• PCL5E, PCL6, PS3
INTERFACE	• PARALLEL : IEEE1284 • USB • NETWORK
HDD	• 2.5INCH,10GB (OPTION)

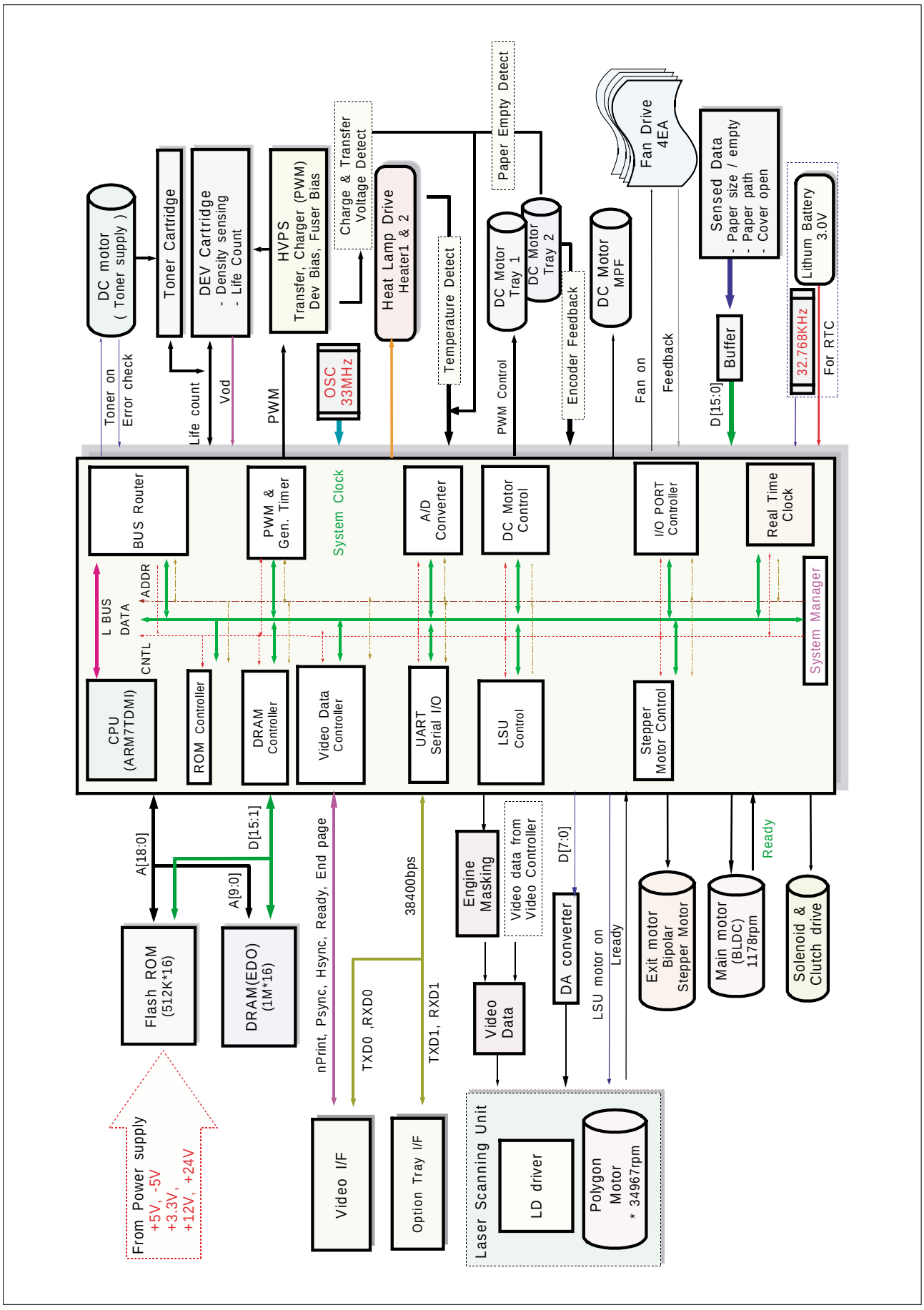
3.5.4 Engine controller

1) It takes the video data from the video controller to help the engine to print.
2) It controls all sorts of engine mechanism.

>>> Engine Controller Electrical Part Layout



>>> Engine Controller Block Diagram



>>> Construction by each function

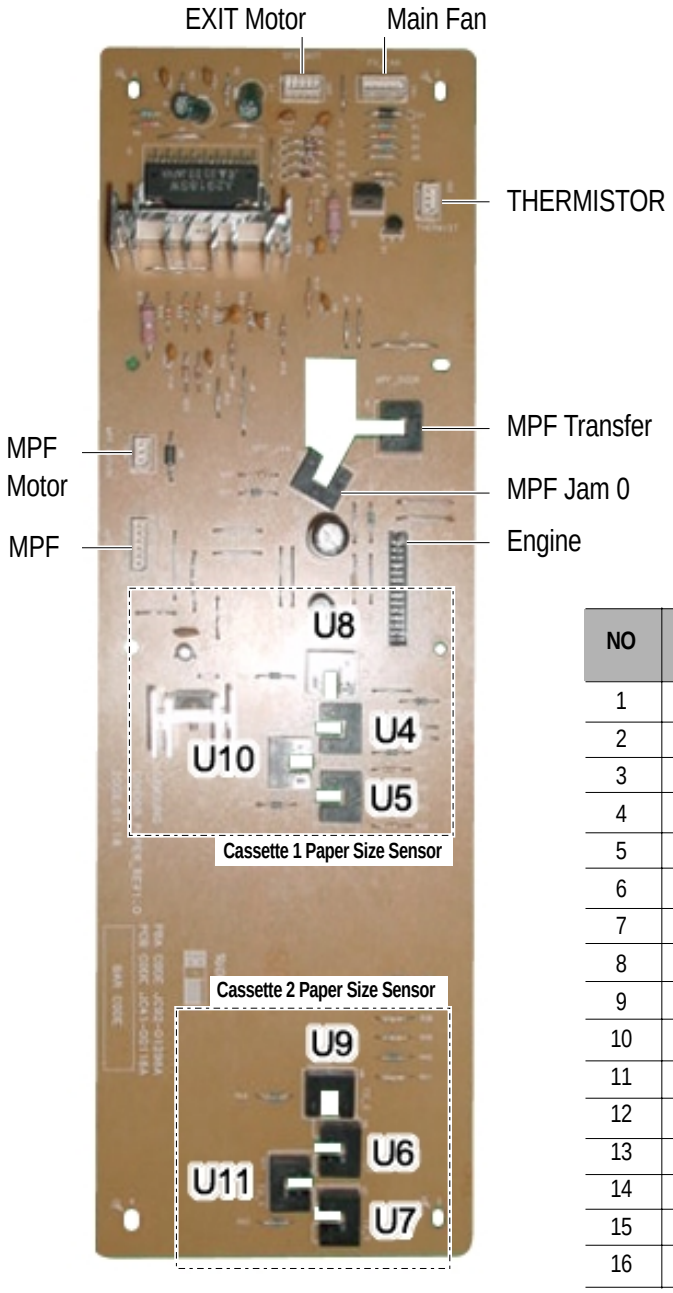
Main construction		Type/Function	Remarks
Mecha. Driving Unit	1. Main motor(BLDC)	**Mechanism Drive** (Duplex, etc. Except feeding optional motor on/off) • 1178 rpm • 220 mN.m • 24 V/4.9 Apeak (7Amax)	Start Time : 800 msec
	2. DC motor	**Paper Pick-up (Tray1,2, MPF)** • 4800 RPM • Speed control by Encoder • 24V/2.8 Apeak	
LSU Control Unit	1. Polygon Motor	• 34967 RPM (7 Angle) • 24V/1.3A	
	2. Ld	• Ld Power 5V (Find adjustment of the power by DAC)	
Developing Changeable control Unit conditions.	1. High Output	• Transfe : -1.6 KV / +1.7 KV ~ 4 KV • Charge : -1300~ -1550 V • Develop (Toner) : -500V • DTACH Bias : -1.8 KV • Fuser Bias : +400 V	Transfer/Charge : output due to environmental
	2. Toner density control	• The density control by Magnet sensor	T/C 5% Standard : Vod 50%Set
Fusing Unit	1. Heat Lamp Control(2EA) 2. Overheat protection	• Heat Lamp : 850 W(Main) + 700 W • Lamp is blocked by Relay when overheating	PID control H/W protection
Development, Toner Hopper Life Counter	Micom	Developer and toner hopper	

3.5.5 Paper size B'd

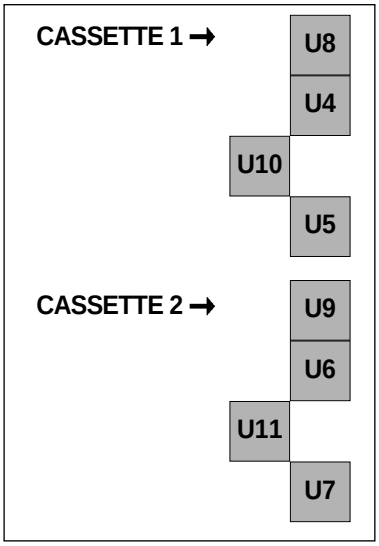
- It is a device to store paper. There are two cassettes and optional cassette which purchased separately.
- Checking paper size:
  It is an universal type, possible to adjust the paper size, and it detects the paper size by opening and closing the light path of the paper detecting sensor on the paper size PBA. There are 4 sensors per a cassette.

  The operation of the sensor for each size of paper is shown in the table.
- Time for checking the paper size: When attach/detach the cassette / Before the print / Right after recover the jam / After closing covers.
- The automatic selecting sequence is shown as below in case there are papers in the Upper/Lower cassette and MPF.

MPF →Upper cassette →Lower cassette

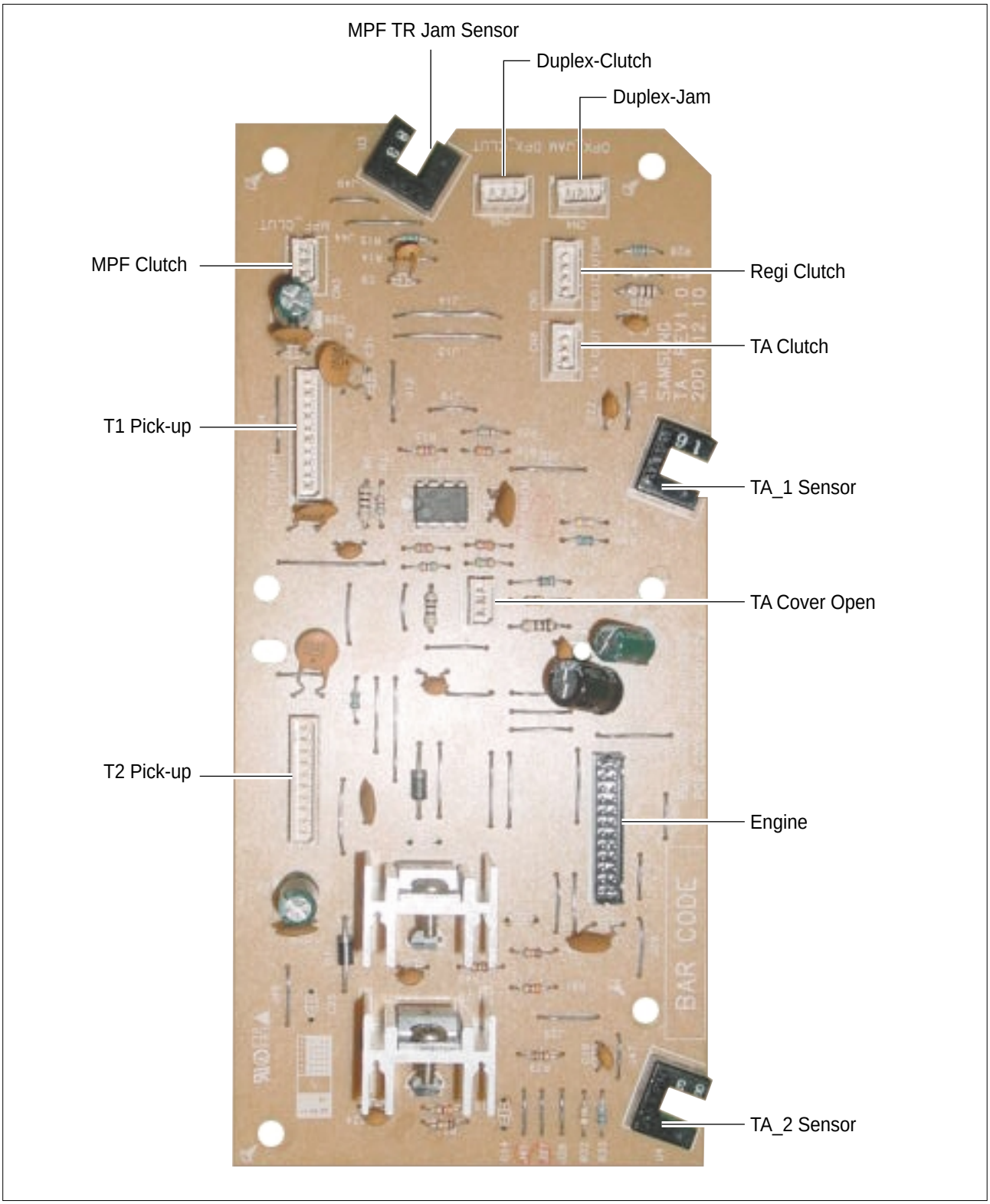


<Paper Size Sensor>



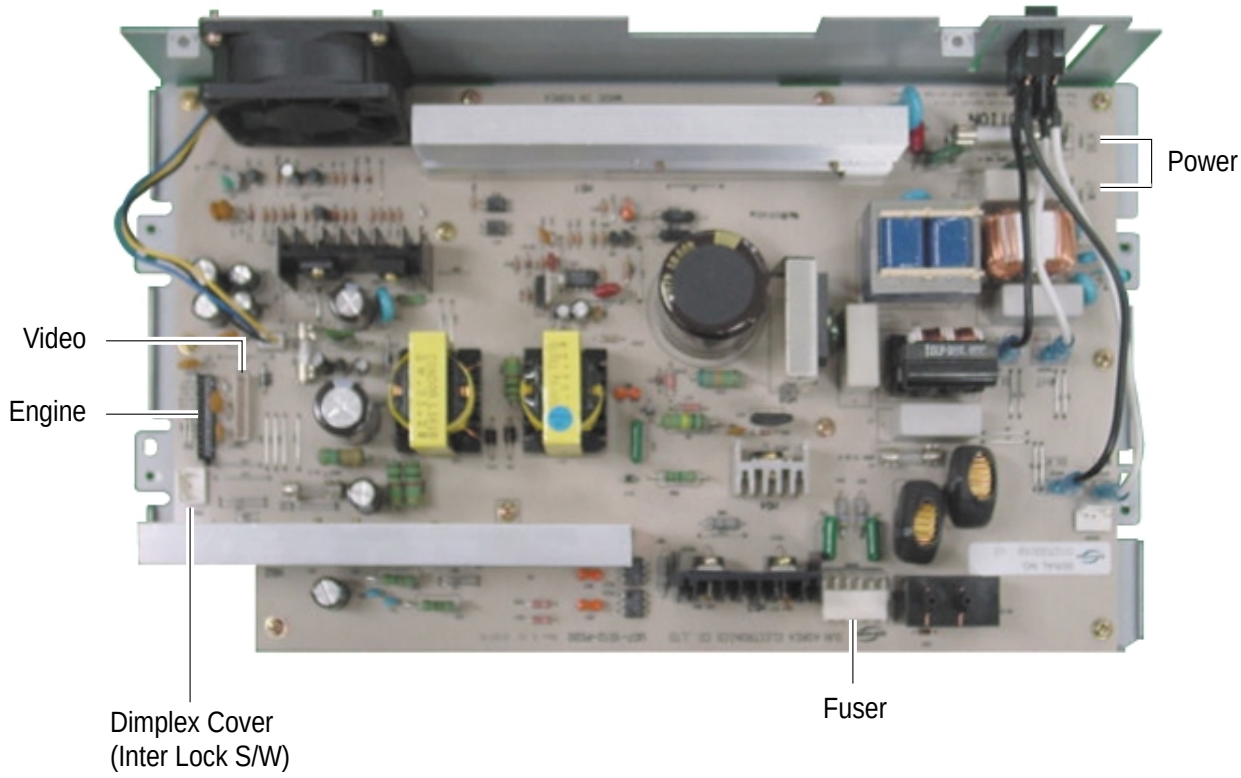
NO	PAPER SIZE	CASSETTE 1/ CASSETTE 2			
		U5/U7	U10/U11	U4/U6	U8/U9
1	NO CASSETTE	L	L	L	L
2	JIS B5	L	L	L	H
3	ISO A3	L	L	H	L
4	LEDGER	L	L	H	H
5	LEGAL	L	H	L	L
6	JIS B4	L	H	L	H
7	FOL IO	L	H	H	L
8	ISO A4	L	H	H	H
9	LETTER	H	L	L	L
10	EXECUTIVE	H	L	L	H
11	ISO A4L	H	L	H	L
12	LETTER L	H	L	H	H
13	EXECUTIVE L	H	H	L	L
14	JIS B5L	H	H	L	H
15	STATEMENT L	H	H	H	L
16	ISO A5L	H	H	H	H

3.5.6 TA Board



- Pick-up : Tray 1, Tray 2
- Sensor : TA_1 Sensor, TA_2 Sensor, MPF TR Jam Sensor, Duplex Jam Sensor, TA Cover Open Sensor
- Clutch : MPF Clutch, Duplex Clutch, Regi Clutch, TA Clutch

3.5.7 Power Unit(SMPS : Switching Mode Power Supply)

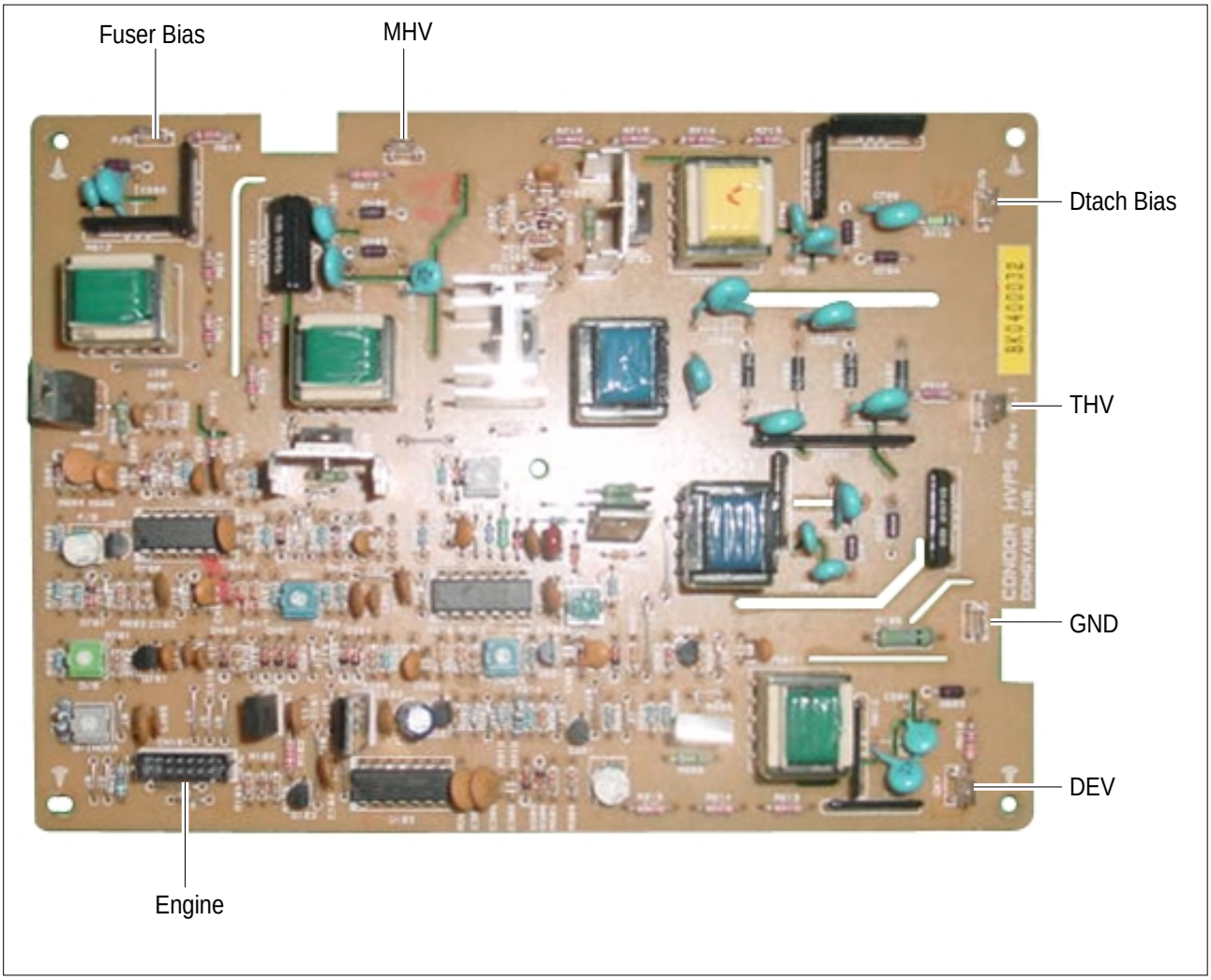


It is a switching power device (The separately excited type) has AC 220~240V(*us : 110~120V) of the rated input, and it drives with fixed frequency method. The outputs (+5.1, -5.0, +12V, +24Vs, +3.3V) are created within a range of AC 180V~270V and 47~63Hz.

▼ Power Spec

	+5.1V	-5.0V	+12V	+3.3V	+24V	+24VS
Rated output voltage	+5.1V	-5.0V	+12V	+3.3V	+24V	+24VS
Rated output current	2.5A	0.02A	0.2A	0.5A	1.5A	1.5A
Rated output 88.9W	12.75W	0.1W	2.4W	1.65W	36W	36W
Maximum output 201.7W	22.95W	0.25W	7.2W	3.3W	84W	84W

3.5.8 HVPS : High Voltage Power Supply



1) It is a high voltage power device used to generate the image process voltages. The rated input is DC +24V/DC +5V. It outputs the Charging voltage (MHV), Supply voltage, Developing voltager, and Transfer voltager(THV).

2) Each high voltage output is indicated on the board. The voltages for electronic photo process are varied for best conditions.

3) Safe device: The power of the HVPS is cut off by operating the micro SW when the duplex cover is open.

4) Voltage

• Charging voltage (MHV)	:	Electric static environment control, DC 1.3KV~1.55KV
• Developing voltage (DEV)	:	Electric static method, DC-500V fixed ± 5%
• Transfer voltage (THV)	:	Electric static/ Environment control
• Transfer outputting voltage (+)	:	DC + 1.7 KV ~ 4 KV
• Transfer outputting voltage (-)	:	DC - 1 KV ~ -1.6 KV
• DETACH BIAS	:	DC -1.8KV
• FUSER BIAS	:	DC +400V

4. Disassembly and Assembly

4.1 Cautions

4.1.1 Cautions for replacement of parts

A special attention is needed when replacing parts.

Before disassembling the machine, the locations of the connectors should be memorized for reassembling it.

You must check it before disassembling it.

Before disassembling the machine for repair or replacement, follow the descriptions shown in the below.

- Check whether there is any information in the memory or not.
- Disconnect the power code and printer cables.
- Remove the cassettes and the toner cartridge.
- Avoid the toner cartridge from the direct sunlight and do not scratch the surface of the drum.
- Do not touch the heating parts such as fuser Ass'y or heat lamp.
- Do not touch the high voltage parts.
  Even though the power has turned off, there would be remained current in the condenser.
- Do not touch the rotating parts such as the gears, belts, pulleys, fan, etc. when it is rotating.
- When disassembling the cover, be careful with its sharp edge.
- If the machine is power on when repairing it, do not touch the rotating or operating parts, and especially be careful not to expose it by laser.
- Do use proper tools.
- Be careful with the laser emission.
  - Be careful not to be exposure with the laser beam directly.
  - Do not put any object on the path where the laser beam gets through.
  - Do remove all accessories such as watch, ring, bracelet, etc. which reflex the laser beam.
- Do read and follow the rating plate and the caution label to check if it is clean or if it is installed properly.
- Do disassemble/assemble it on the clean flat palace.
- Do use the authentic products and the identical standardized products.
- When loosen or tighten the plastic parts, do not overpower on it.
- Be careful not to change the location of parts.
- Cover the LSU window with a clean paper. The toner particles or paper dusts could be stick on the LSU when turning over the machine.
- Fans (rear/exit/SMPS/front) in the set maintain the airflow in the set, which is very important roll for operating system. Do use standardized parts when replacing it.
- Clean the toner empty sensor when replacing the toner and the toner container.

4.1.2 Cautions for replacement of the Video controller PBA

When you replace the video controller PBA, you must disassemble the NVRAM(U2) from the used PBA and attach it to the new PBA. The NVRAM stores several important information such as history of printout counts, jam occurring counts, unit replacing counts, and so on. If you replace the NVRAM with a new one, all the information is erased as initial status as from factory.

In this case, it is difficult to maintain or to repair the product properly.

When replace the video controller PBA, the NVRAM must be attached to a new PBA.

(Refer to the Chapter 3-25 for the location of the NVRM assembly)

4.1.3 Cautions for replacement of the consumption part

Some parts are consumption parts such as engine oil or belt of car. The parts' life span is stored in NVRAM, and you can check the using amount of parts when you need.

After replacing the parts, the life count value must be initialized for informing the replacement to the machine.

(Chapter 6 Troubleshooting - Service Mode - Reset Unit CNT: refer to the 6-51 page)

>>> Life cycle of the consumption parts

This periodic table contains the general information for the maintenance.
The parts in the table have shorter life span than the machine like tires or belts of a car. After certain time, the parts must be replaced regularly.
The reasonable life cycles are written due to A4 size paper standard.
Check the print running count when maintaining or repairing the machine, and replace the part, has on the due time.

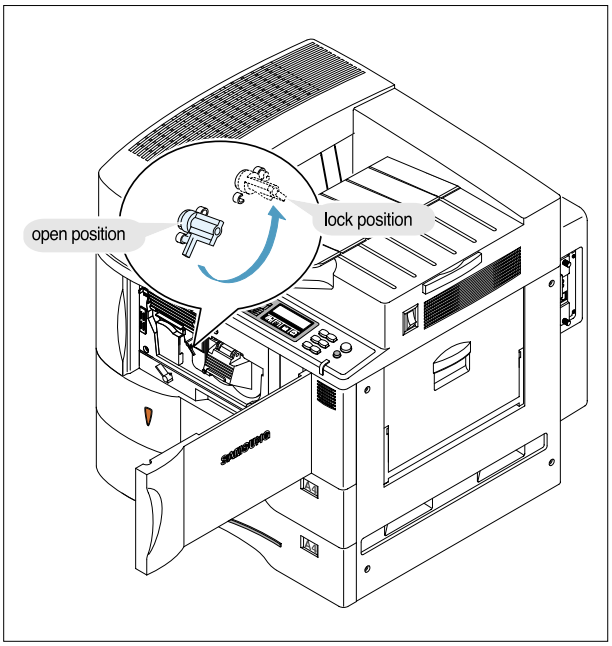
No.	Part	A Period of replacement	Part Name	The number of the four sites analysis diagram.
1	Exit Unit	500,000 Page	ELA UNIT-EXIT	7-2 Page
2	Fuser Unit	200,000 Page	ELA UNIT-FUSER	7-2 Page
3	Transfer Unit	100,000 Page	ELA UNIT-TRANSFER/ROLLER ASS'Y	7-11 Page
4	Roller FR PU	100,000 Page	ELA UNIT-ROLLER FR PU ASS'Y	7-21 Page
5	Roller RE PU	100,000 Page	ELA UNIT-ROLLER RE PU ASS'Y	7-21 Page
6	Pickup Roll MPF	200,000 Page	MEA UNIT-Pickup ROLL MPF	7-25 Page
7	Septate Roll MPF	200,000 Page	MEA UNIT-SEPARATE ROLL MPF	7-25 Page
8	Pad Plate Roll Separate	200,000 Page	PAD-PLATE ROLLER SEPARATE	7-25 Page
9	Pad Separate Small	200,000 Page	PAD-PLATE STOPPER MPF	7-25 Page
10	Pad Pickup MPF	200,000 Page	PAD-Pickup MPF	7-25 Page
11	Solenoid(Exit)	500,000 Page	SOLENOID	7-13 Page
12	ELECTRONIC Clutch(Exit)	500,000 Page	MEP-CLUTCH OFFSET	7-13 Page
13	ELECTRONIC Clutch(L)	750,000 Page	MEP-CLUTCH REGI	7-2 Page
14	ELECTRONIC Clutch(s)	750,000 Page	MEP-CLUTCH SMALL	7-2 Page
15	Fan Motor(Main)	750,000 Page	FAN-MAIN	7-17 Page
16	Bracket Air Filter	750,000 Page	BRACKET-M-AIR FILTER	7-5 Page
17	Cushion Main Fan	750,000 Page	RMO-MAIN FAN	7-5 Page

4.2 Disassembly of the toner Container

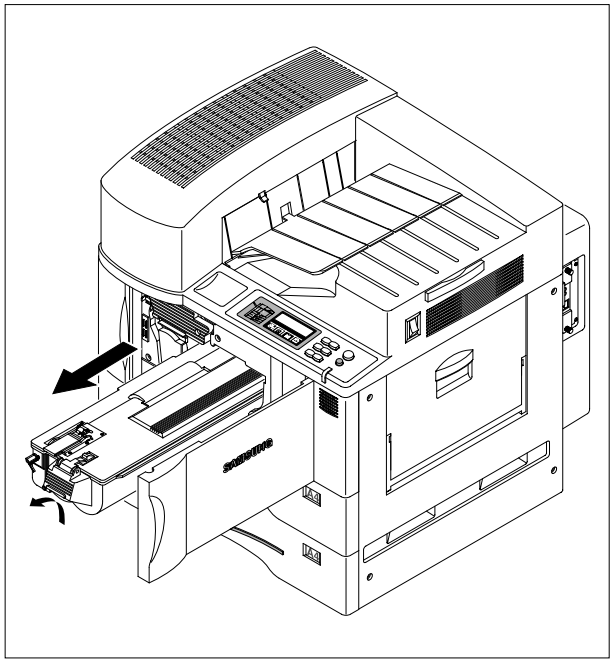
1. Before disassembling the toner container, remove it written in the below.

   • The front door.

2. Turn the toner handle forward to the lock position.



3. Lift up the handle and pull it out to the front shown as below.



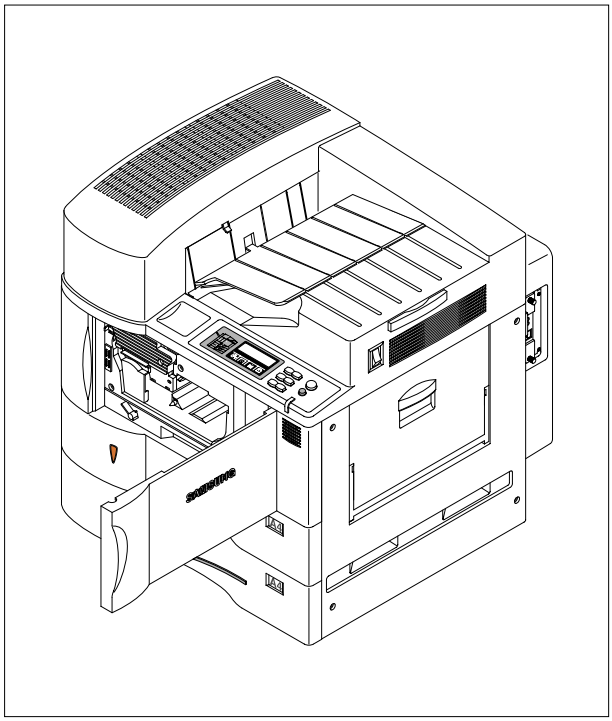
Warning : After disassembling/assembling the toner container and the developer, clean the toner empty sensor. If the toner empty sensor is dirty, it is hard to check the remaining toner amount. (Refer to the 5.2.3, page5~4)

4.3 Disassembly of the Drum Cartridge

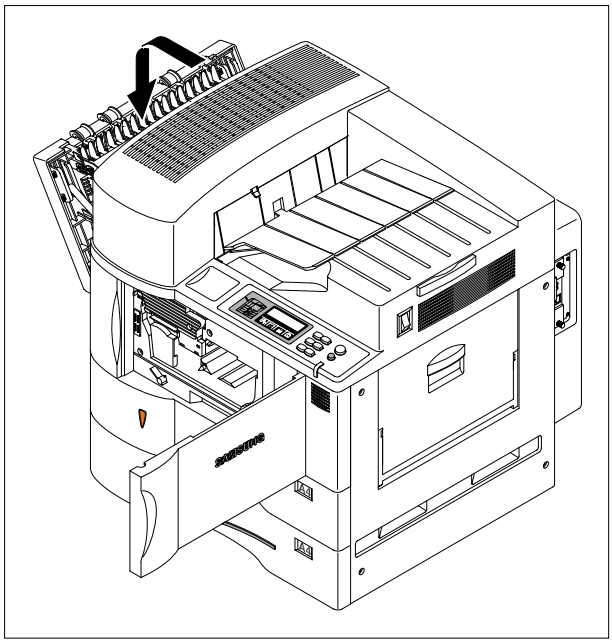
1. Before disassembling the DEVE, remove those written in the below.

- The front door.
- The toner container (Refer to the 4.2)

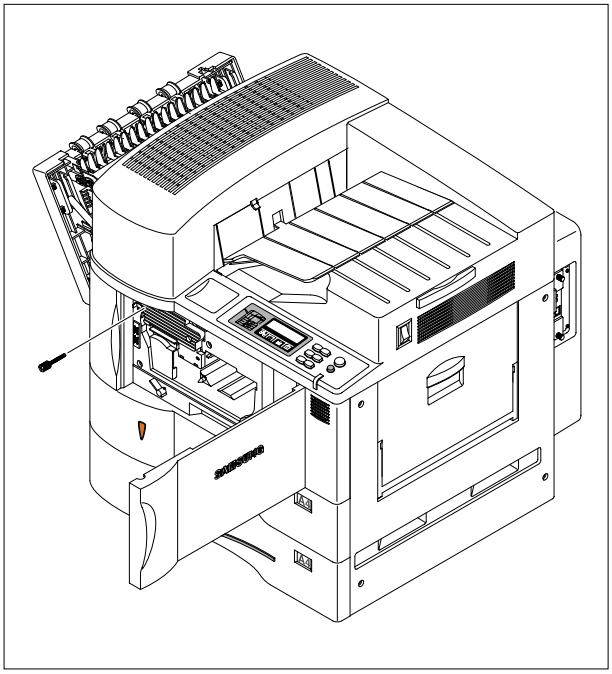
2. Remove the stacker tray.



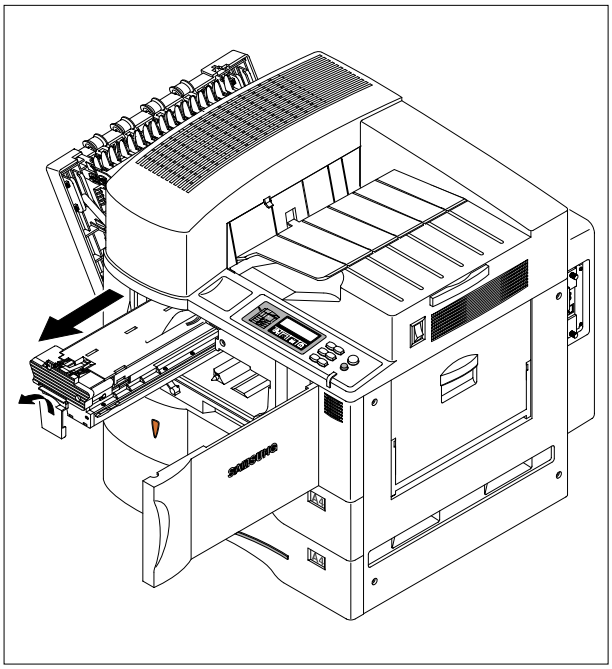
3. Perfectly open the duplex unit.



4. Remove the screw, fixes the DEVE to the set.



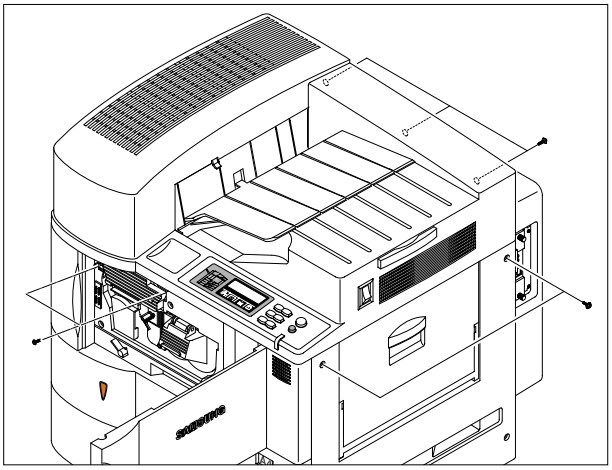
5. Lift up the handle and pull it out to the front.



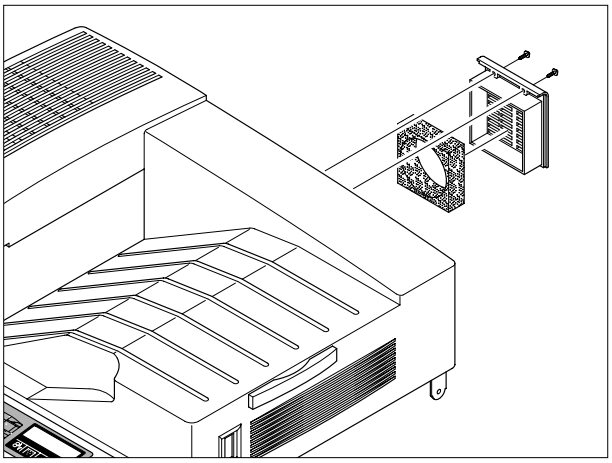
Warning : • Do put the DEVE on the flat surface. Never tilt it.
• Toner could leak.

4.4 Disassembly of the Top cover and Front Fan

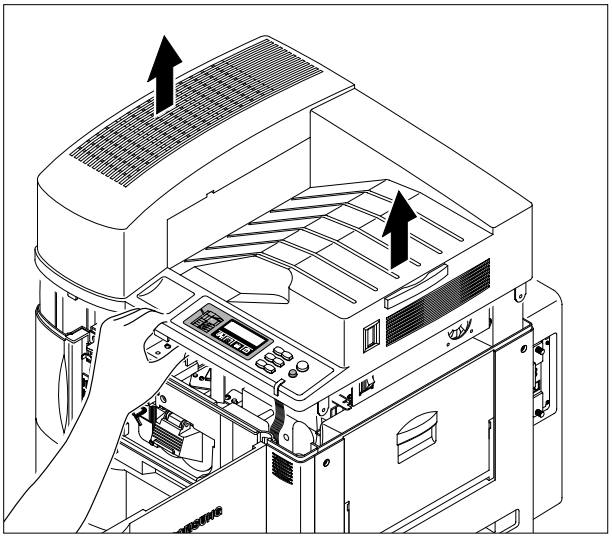
1. Remove 2 screws from the RH cover and 3 screws from the rear cover.



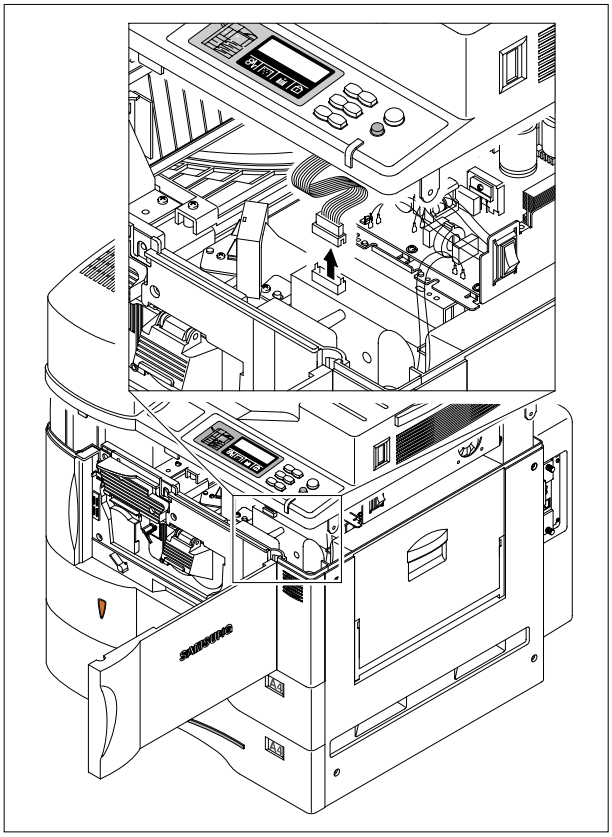
2. Remove 2 screws for taking out the main fan cover.



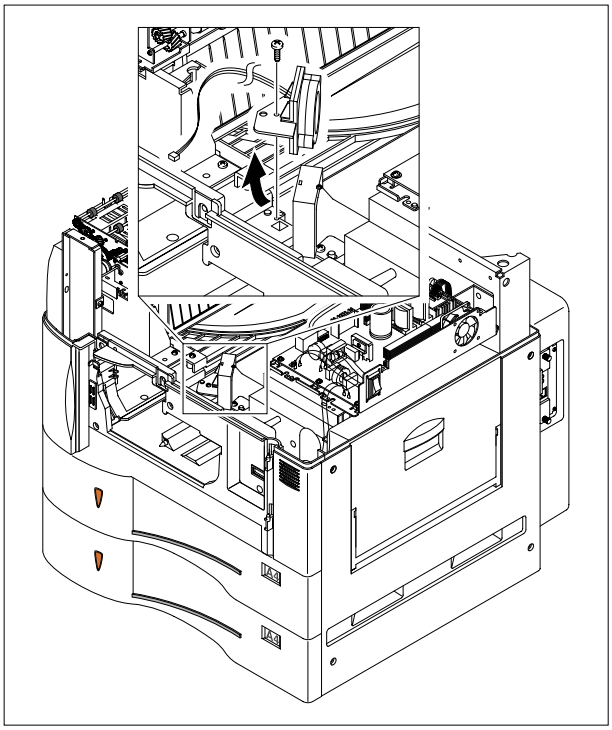
3. Release the lock as shown below and lift up the top cover.



4. Disconnect the OPE connector.



5. Remove the screw and take out the fan Ass'y from the air duct front.

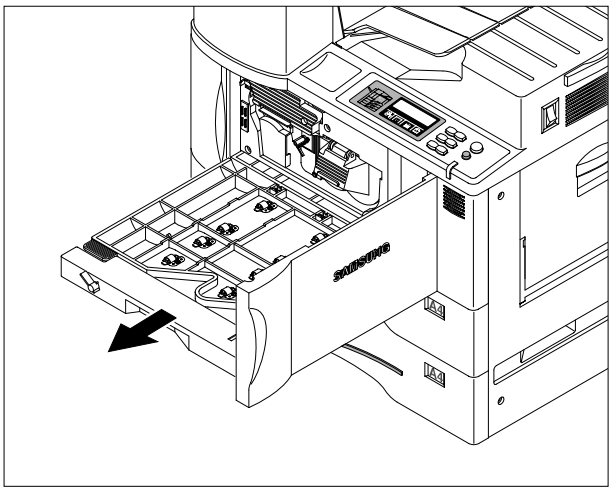


4.5 Disassembly of the MPF transfer

1. Before disassembling the MPF transfer, remove it written in the below.

 • The front door.

2. Take out the MPF transfer by pulling out it to the front.

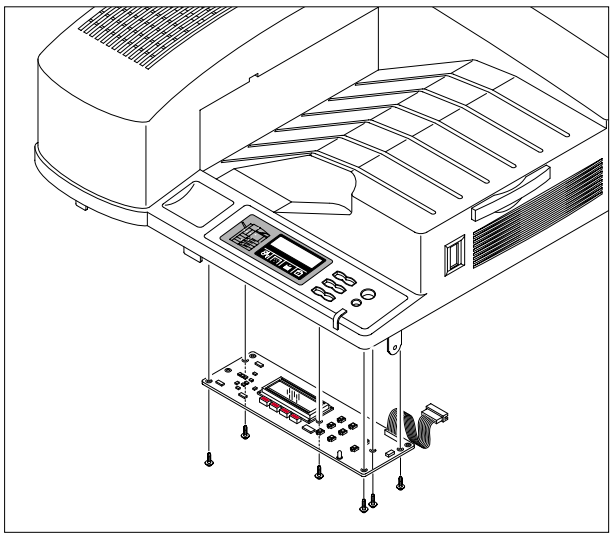


4.6 Disassembly of the OPE Panel

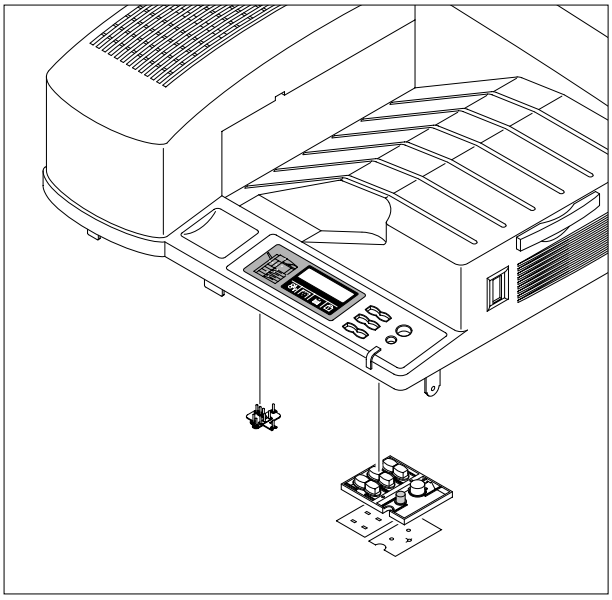
1. Before disassembling the OPE panel, remove those written in the below.

 • The stacker (Refer to the 4.3)
 • The top cover (Refer to the 4.4)

2. Remove the 6 screws, and then take out the OPE panel board.



3. Take out the lamp and the key button.

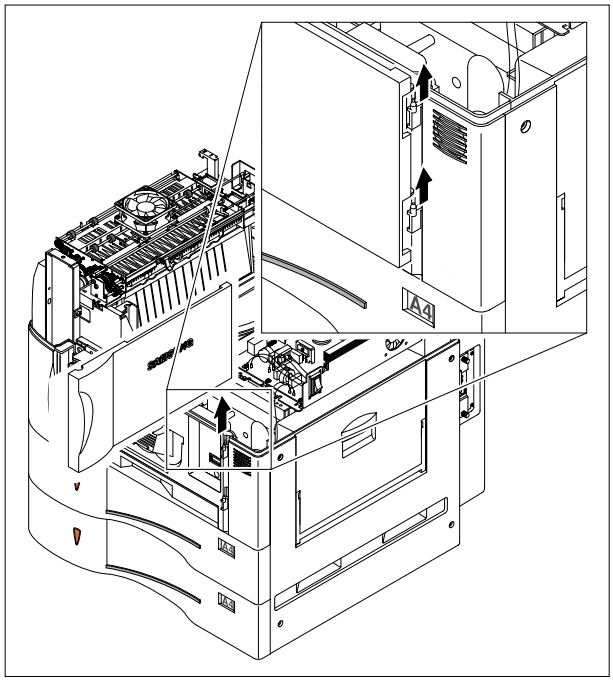


4.7 Disassembly of the Front door

1. Before disassembling the front door, remove it written in the below.

 • The top cover (Refer to the 4.4)

2. Open the front door as below, and then lift it up to take it out from the lock on the right.

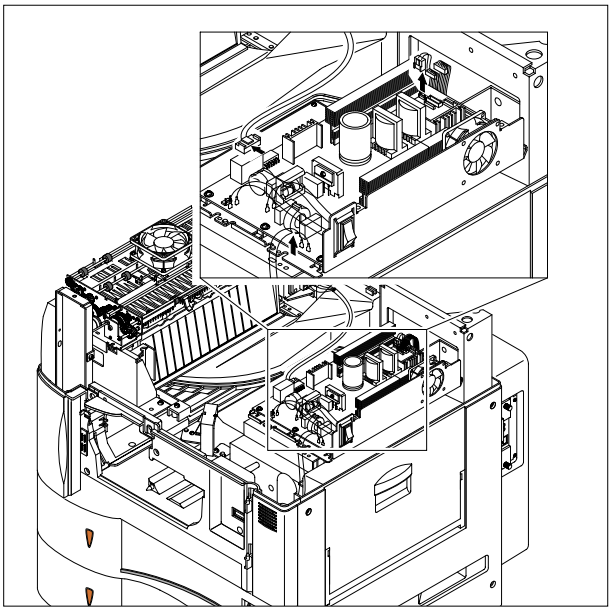


4.8 Disassembly of the SMPS

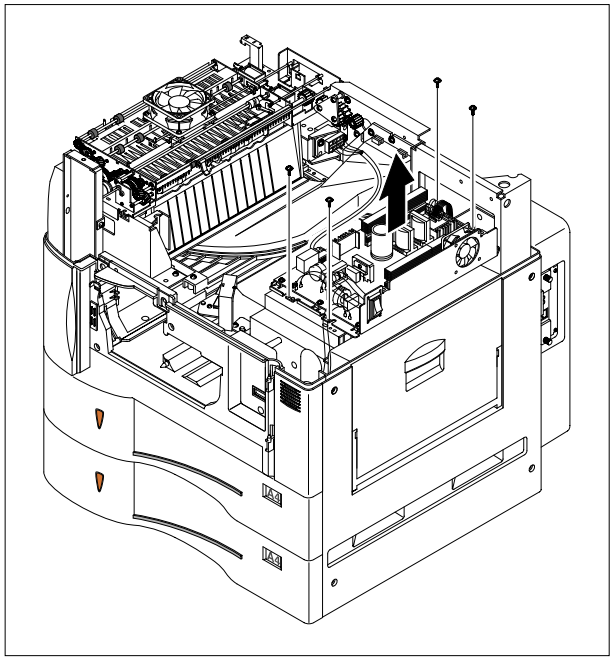
1. Before disassembling the SMPS, remove it written in the bellow.

 • The top cover (Refer to the 4.4)

2. Disconnect the 6 connectors.



3. Remove the 4 screws, and then lift it up.

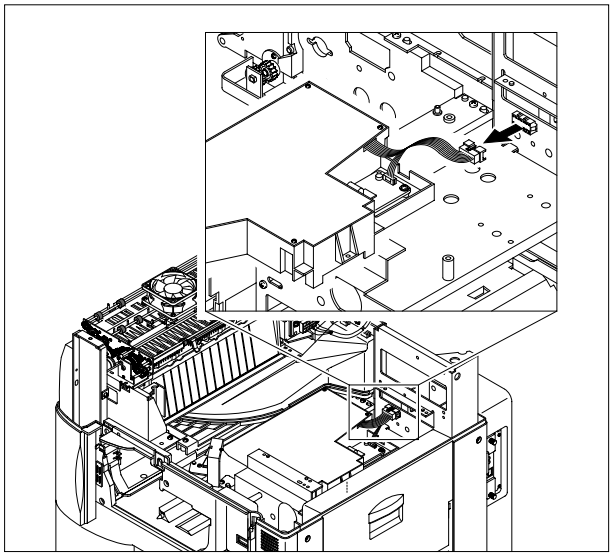


4.9 Disassembly of the LSU

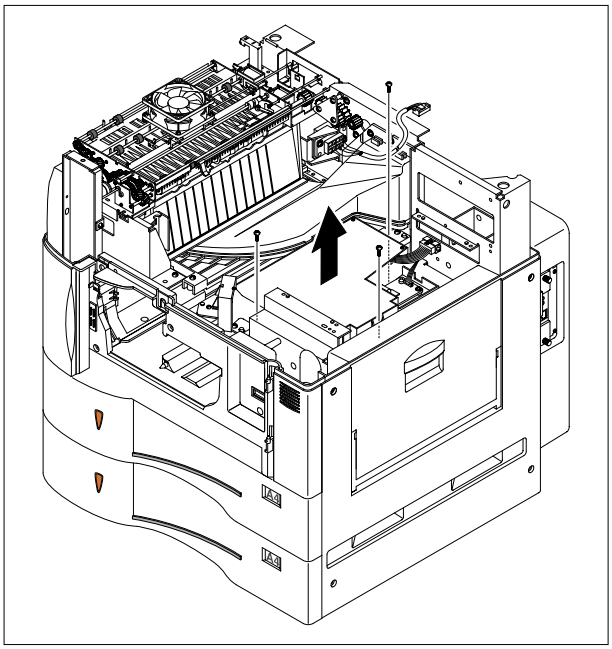
1. Before disassembling the LSU, remove those written in the below.

- The top cover (Refer to the 4.4)
- The SMPS (Refer to the 4.8)

2. Disconnect the connecter shown as below.



3. Remove the 3 screws, and then lift it up.

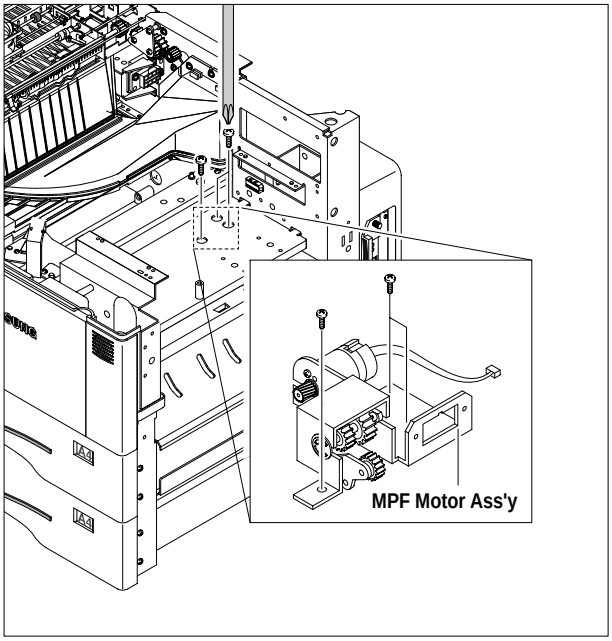


4.10 Disassembly of the MPF Motor Ass'y

1. Before disassembling the MPF motor Ass'y, remove those written in the below.

- Top cover (Refer to the 4.4)
- SMPS (Refer to the 4.8)
- LSU (Refer to the 4.9)
- Rear cover (Refer to the 4.13)
- RH Cover (Refer to the 4.16)
- MPF Pickup (Refer to the 4.19)
- Controller (Refer to the 4.25)

2. Remove 3 screws from the upper frame, and then take out the MPF motor Ass'y.

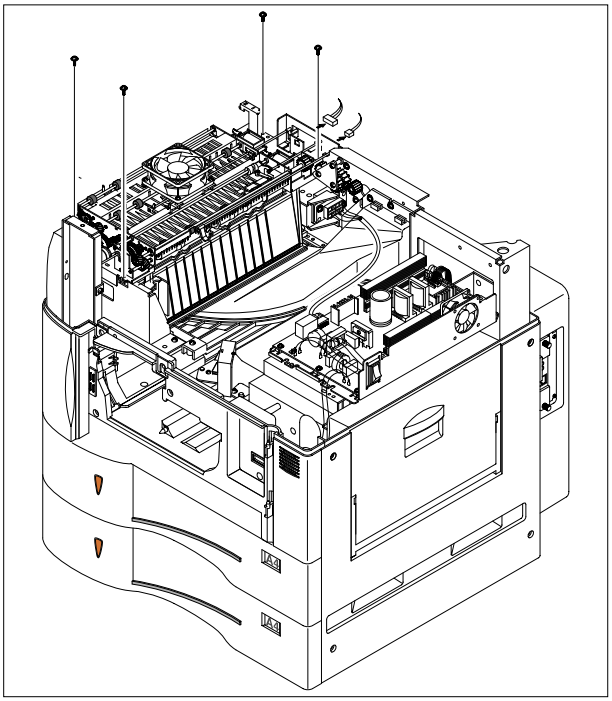


4.11 Disassembly of the Exit unit

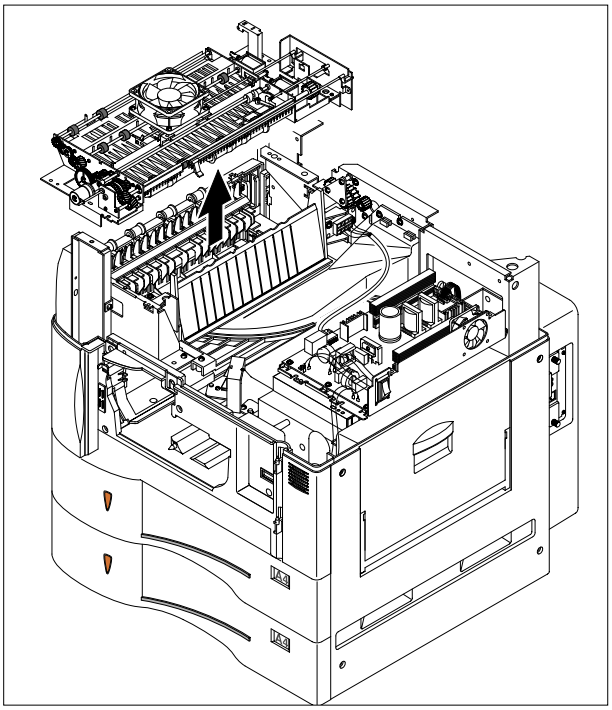
1. Before disassembling the exit unit, remove it written in the below.

   • The top cover (Refer to the 4.4)

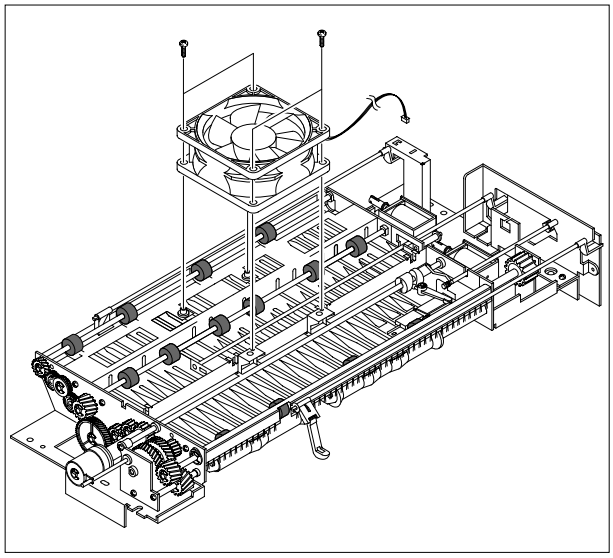
2. Remove 2 harness (the fan harness and engine harness) and 4 screws as below.



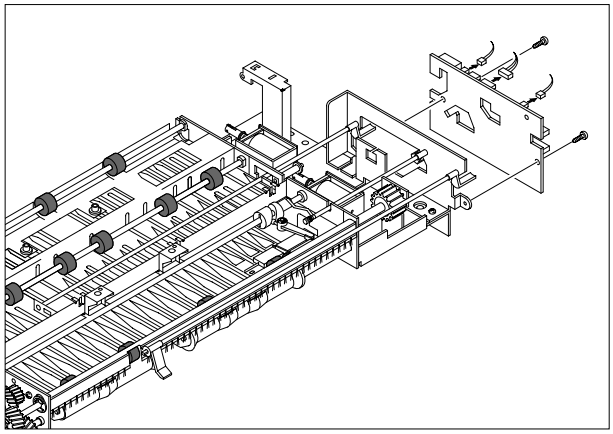
3. Lift up the exit unit to take out.



4. Remove 1 connector and 4 screws, and then remove the exit fan.



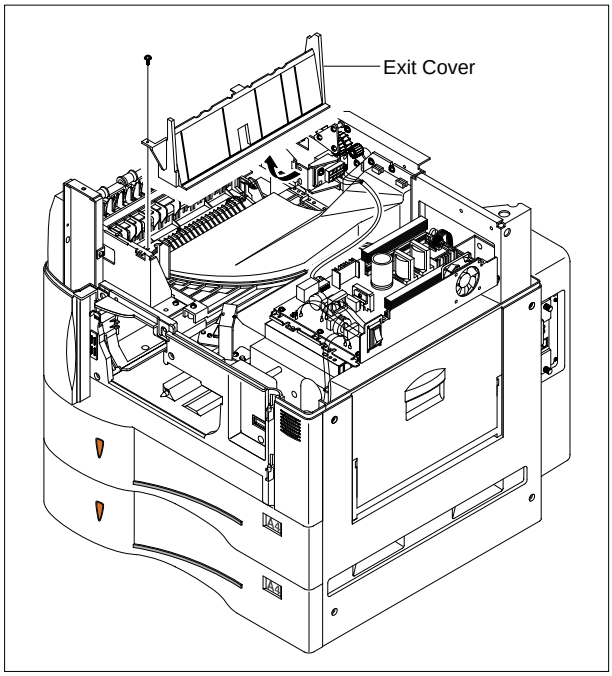
5. Remove the 4 connectors (Fan, Solenoid clutch), 2 screws, and then the exit PBA.



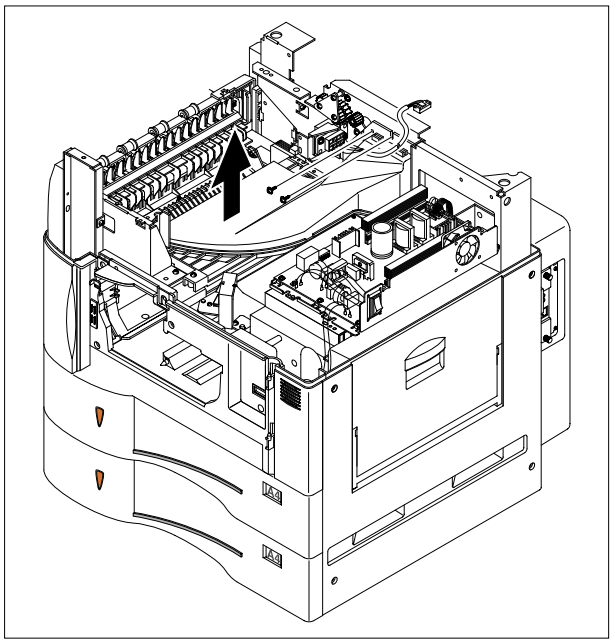
4.12 Disassembly of the Air doctor

1. Before disassembling the air doctor, remove those written in the below.
   - The top cover (Refer to the 4.4)
   - The exit unit (Refer to the 4.11)
   - The fuser (Refer to the 4.22)

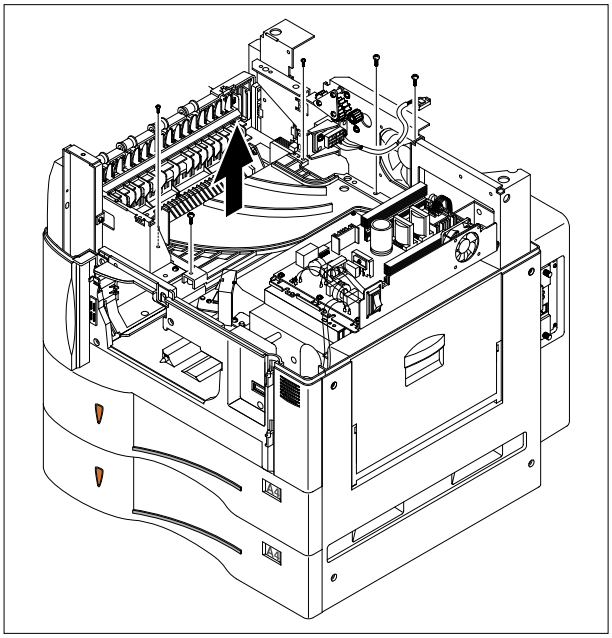
2. After removing 1 screw on the left, lift up the exit cover with carefulness of the lock on the right.



3. Remove 2 screws and lift up the housing air doctor.



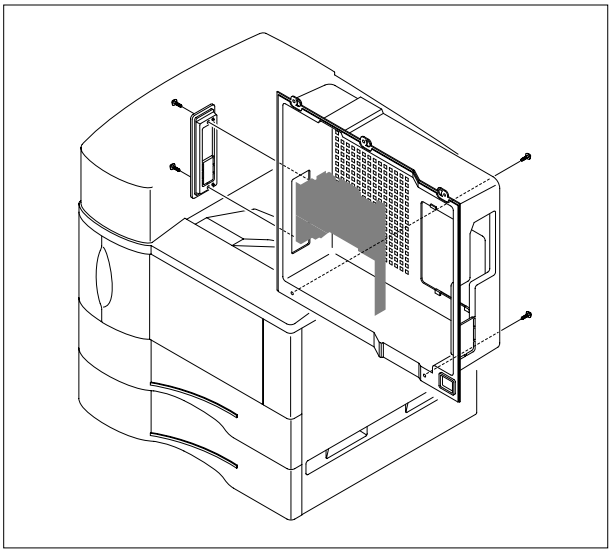
4. Remove 5 screws and then take out the base air doctor.



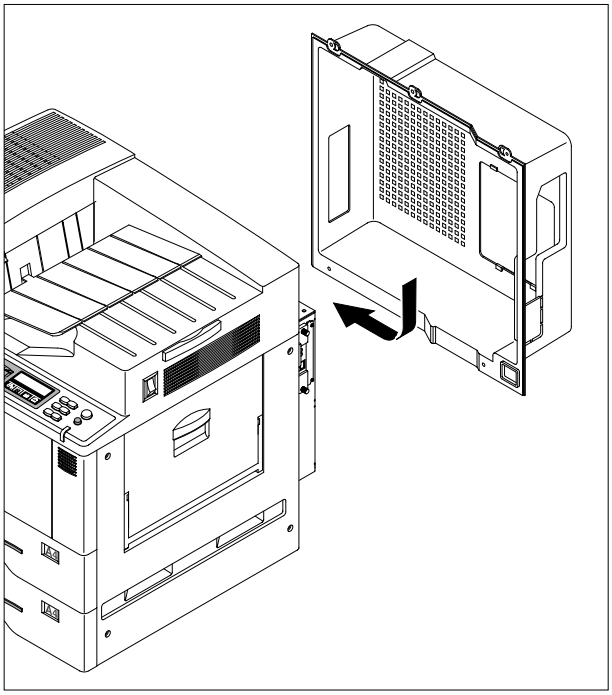
4.13 Disassembly of the Rear cover

1. Remove 3 screws from the upper portion.
   (Refer to the 4.4)

2. Remove 2 screws from the lower portion, and then remove 2 screws from the option connector cover.

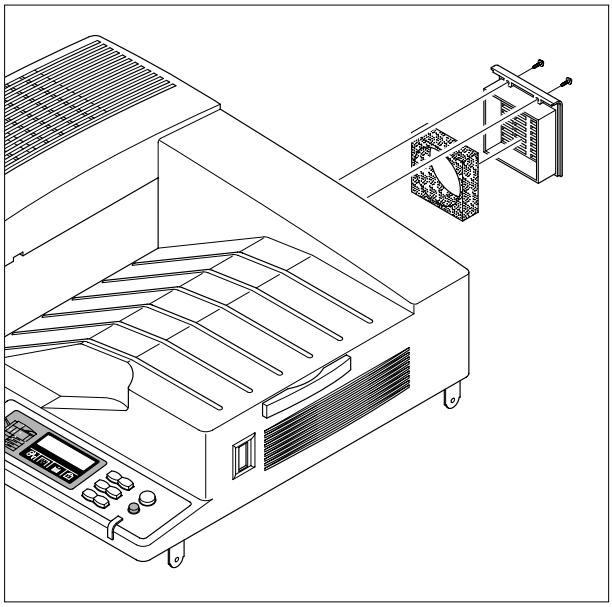


3. Slide out the rear cover to take it out.

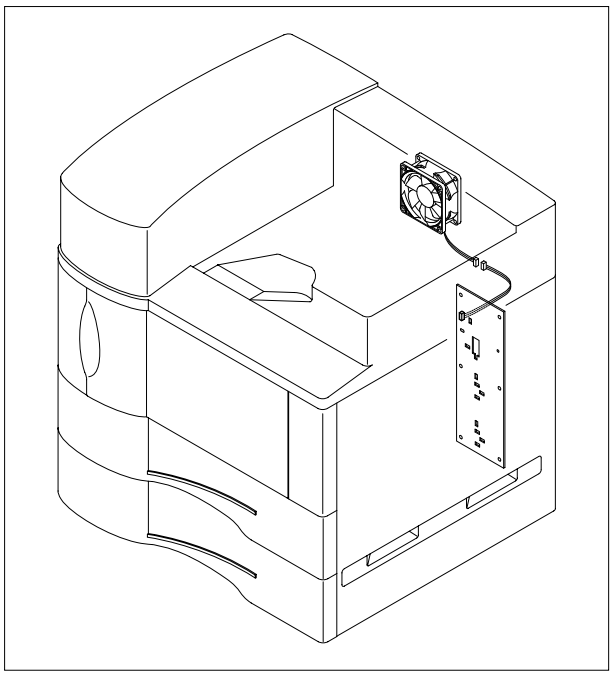


4.14 Disassembly of the Main fan

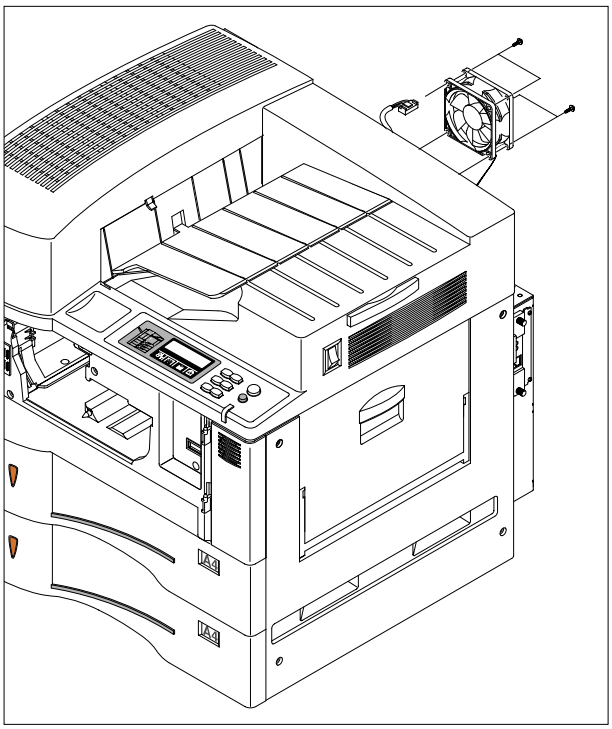
1. Remove the main fan cover by removing 2 screws.



2. Remove the fan harness.



3. Remove the 4 screws and then take out the fan.

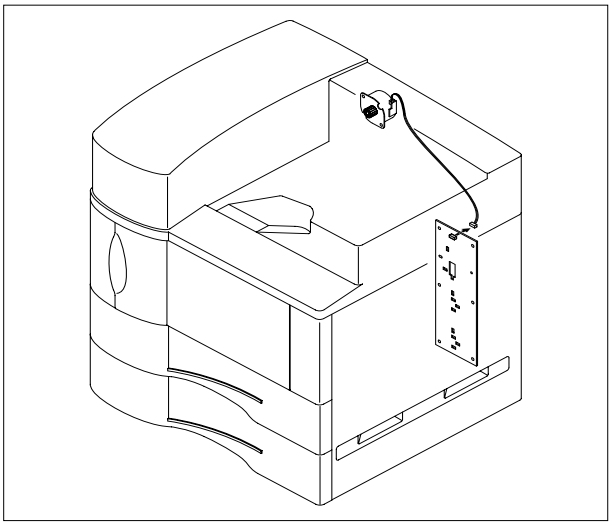


4.15 Disassembly of the Exit motor

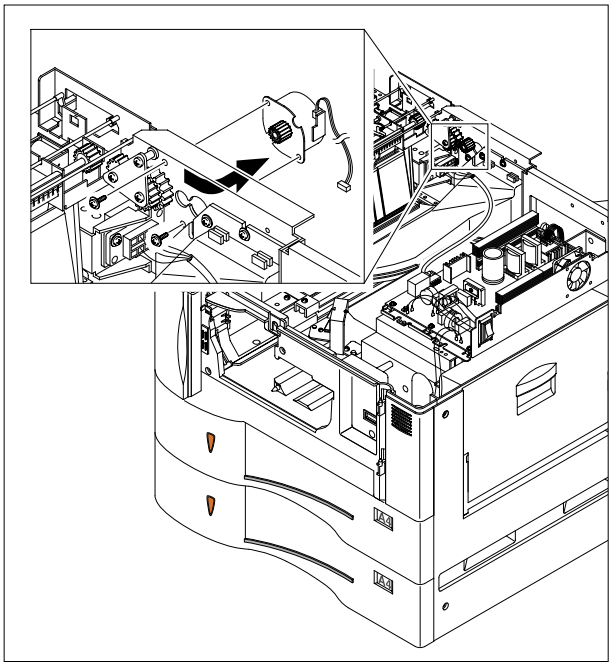
1. Before disassembling the exit motor, remove those written in the below.

- The top cover (Refer to the 4.4)
- The rear cover (Refer to the 4.13)

2. Disconnect the 1 connector from the paper size PBA.



3. After removing the 2screws, take out the exit motor shown as below.

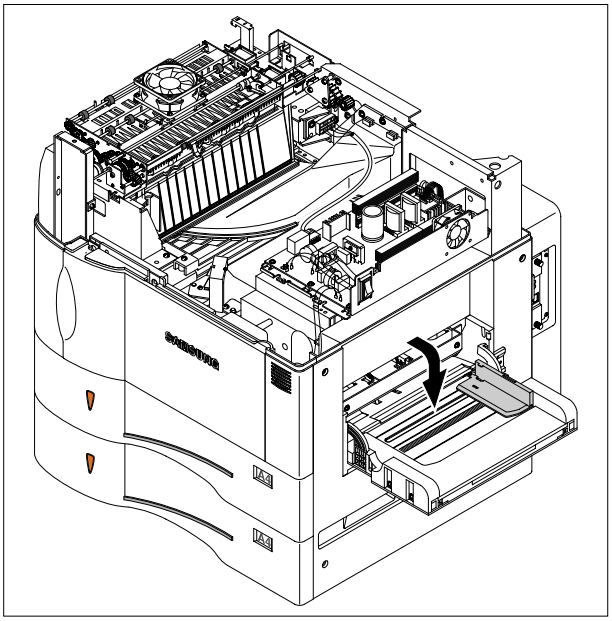


4.16 Disassembly of the Right cover

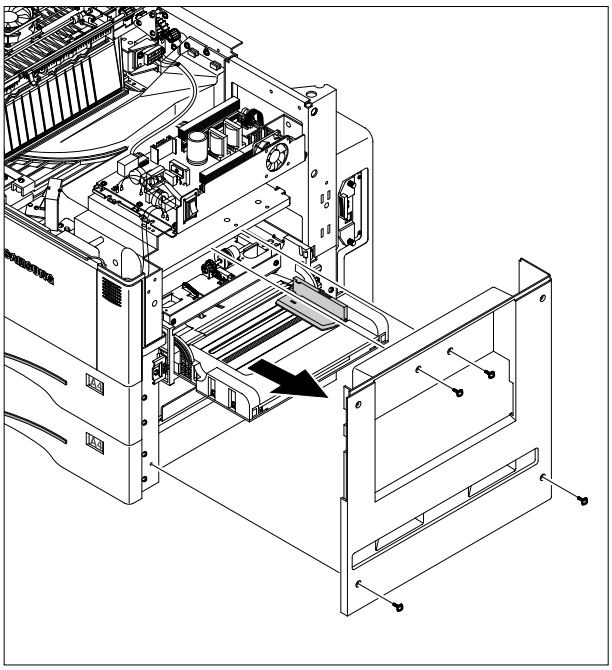
1. Before disassembling the right cover, remove it written in the below.

- The top cover (Refer to the 4.4)

2. Open the MPF Pickup.



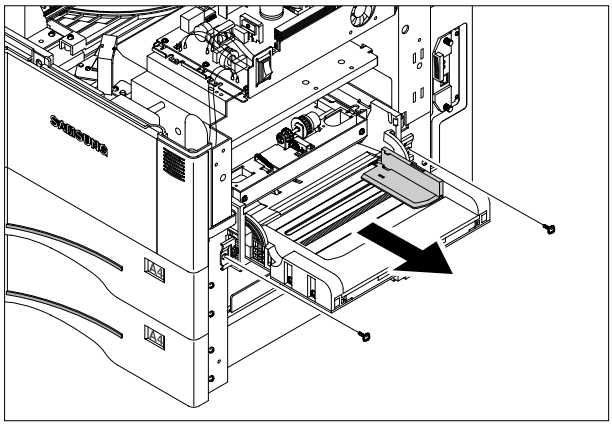
3. Remove the 4 screws and take it out shown as below.



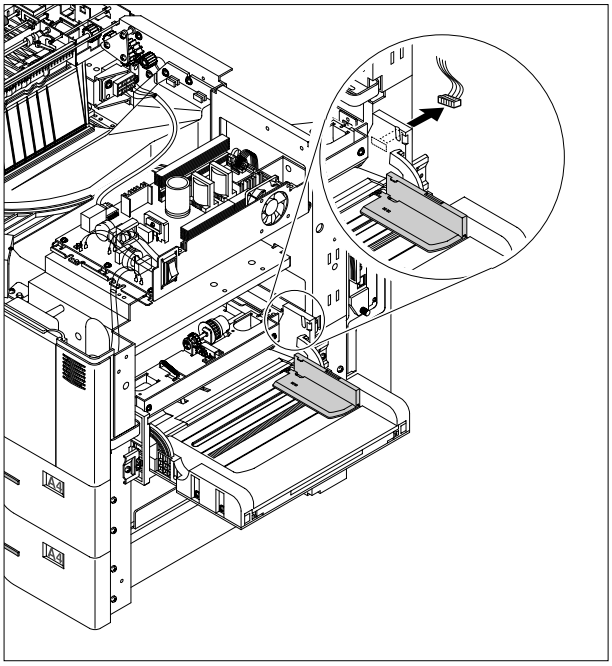
4.17 Disassembly of the MPF tray

1. Before disassembling the MPF tray, remove those written in the below.
   - The top cover (Refer to the 4.4)
   - The right cover (Refer to the 4.16)

2. Remove 2 screws, and then pull out the MPF tray to the forward.



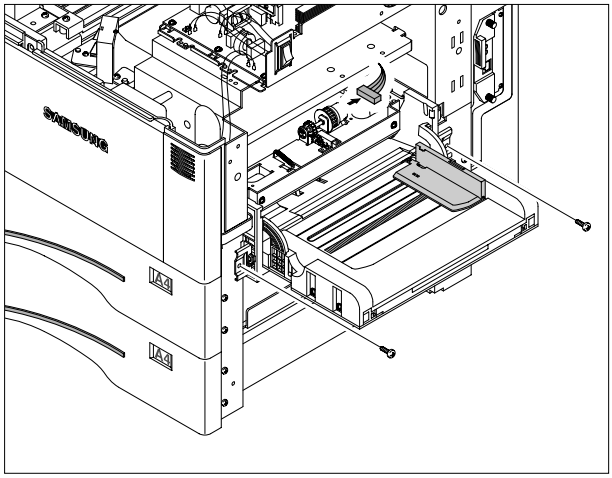
3. Remove 1 harness.



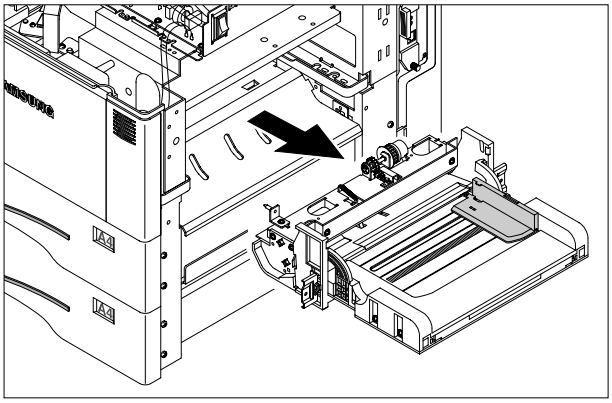
4.18 Disassembly of the MPF Clutch

1. Before disassembling the MPF Pickup, remove those written in the below.
   - The top cover (Refer to the 4.4)
   - The RH cover (Refer to the 4.16)

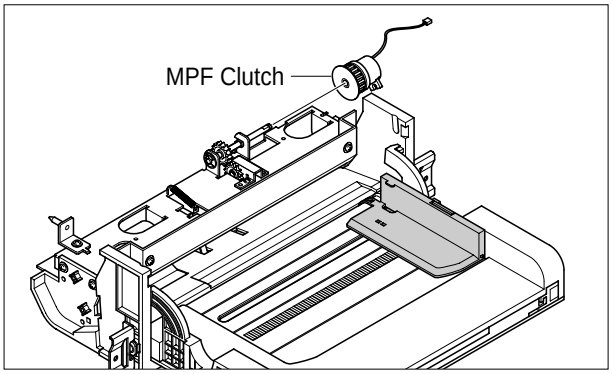
2. Disconnect the 1 connector and remove 2 screws from the both ends.



3. Pull out the MPF Pickup to the front to take it out.

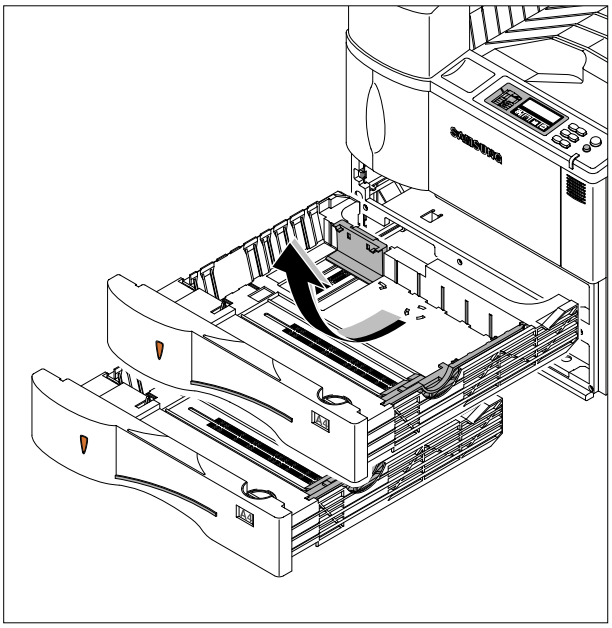


4. Pull out the MPF Clutch to the MPF Pickup to take it out.

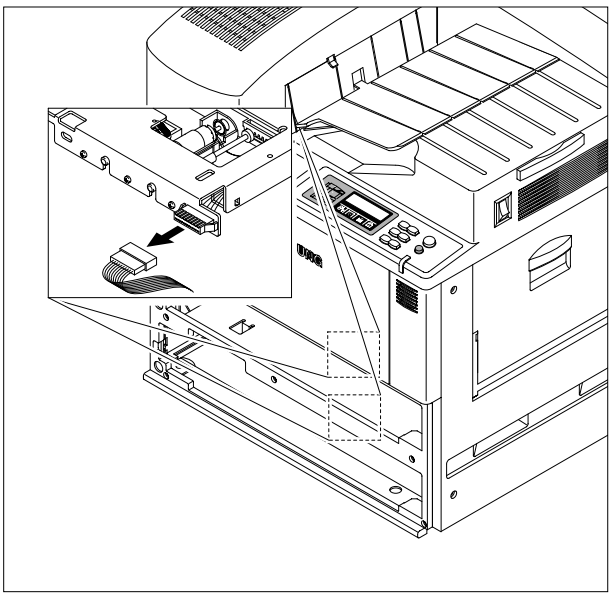


4.19 Disassembly of the Pickup Unit

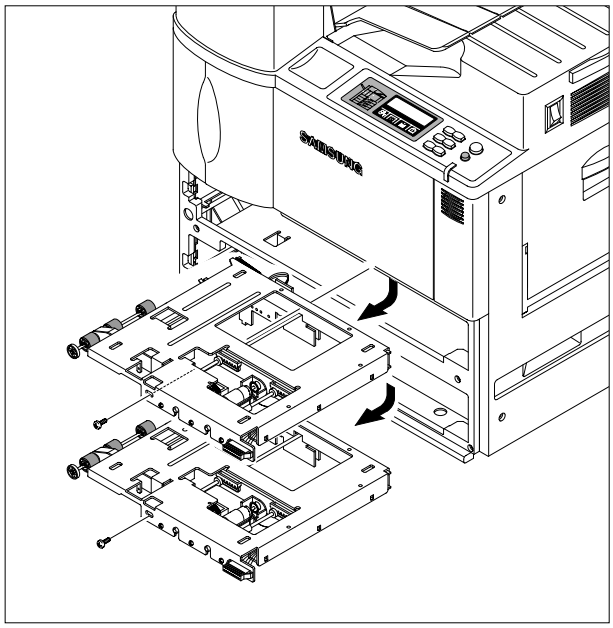
1. Pull the cassette out till the end, and then lift up its front to remove it.



2. Disconnect the 2connectors from the inside of the frame lower as below.

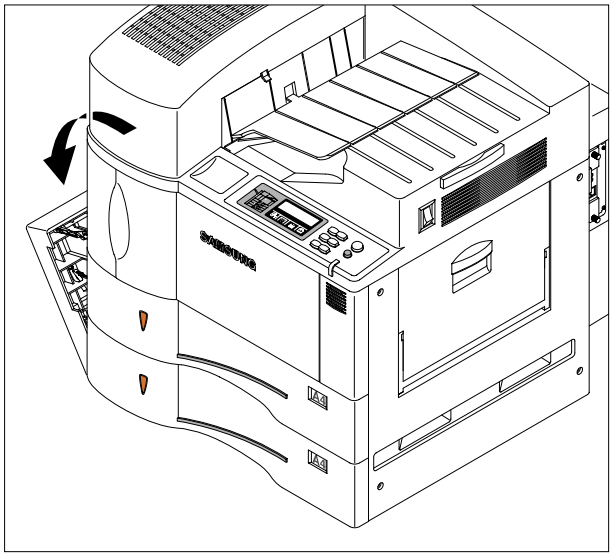


3. Remove 2 screws from the inside of the frame lower, and then pull it out to the front shown as below.

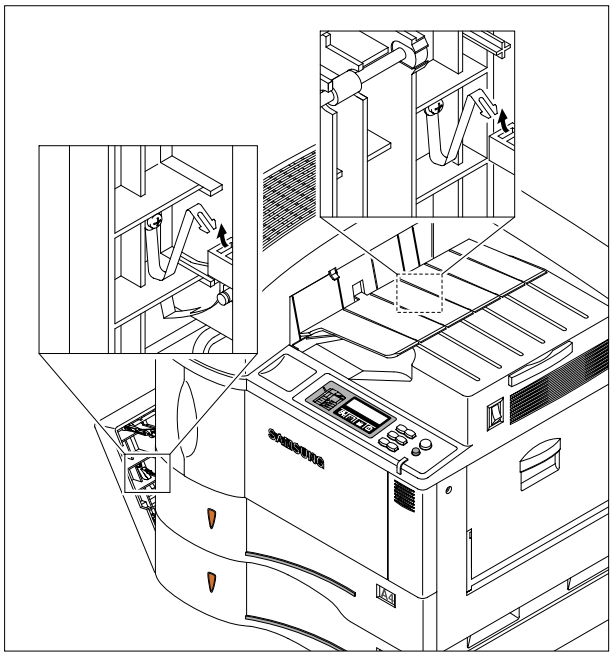


4.20 Disassembly of the Take-away unit

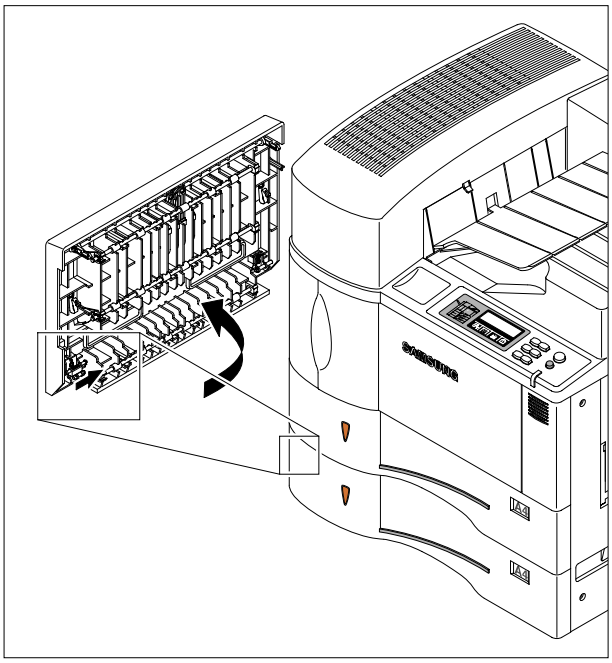
1. Open the Take-away unit.



2. Remove the Stoppers on the left and right.



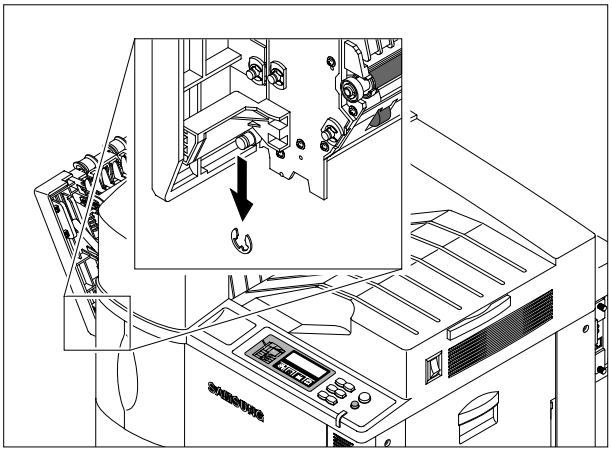
3. Push the hinge unit (front) by finger, and then take out the take-away unit to the front.



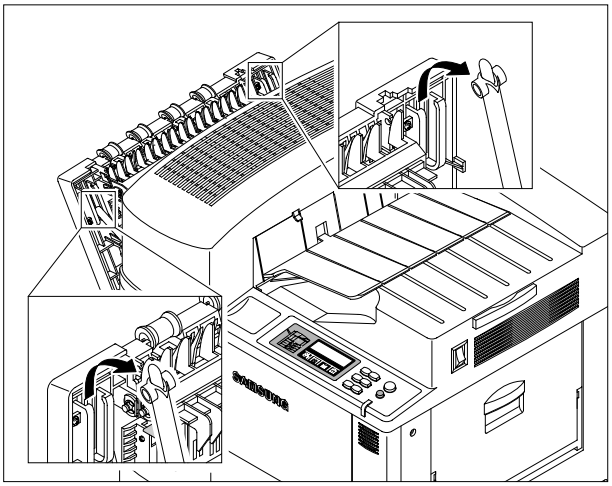
4.21 Disassembly of the Duplex unit

1. Before disassembling the duplex unit, remove it written in the below.
 • The stacker tray (refer to the 4.5.2)

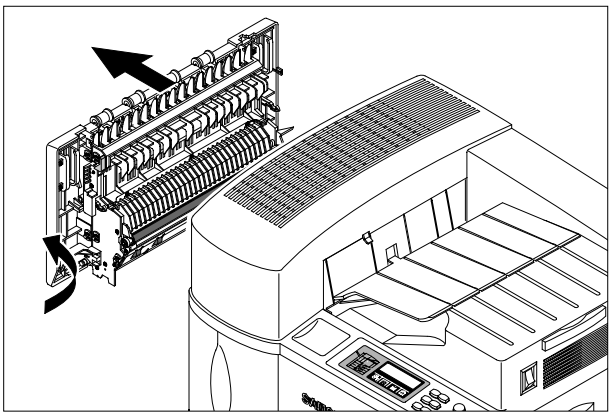
2. Open the duplex and remove the E-ring from the lower right.



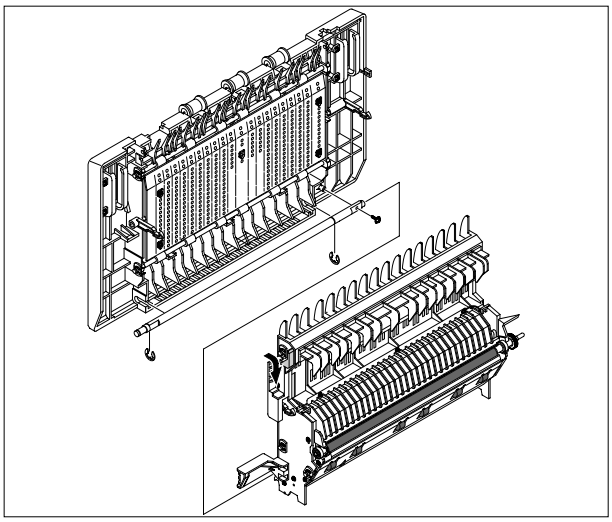
3. Remove the both damper as shown as below.



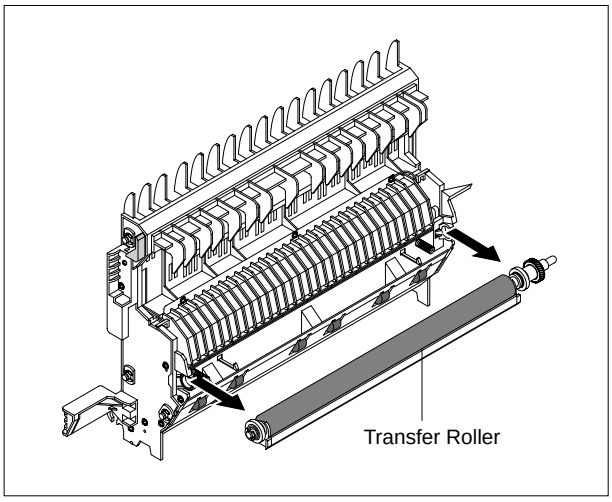
4. While Sliding the duplex to the left, remove the lower right part first, and then remove it toward to the front.



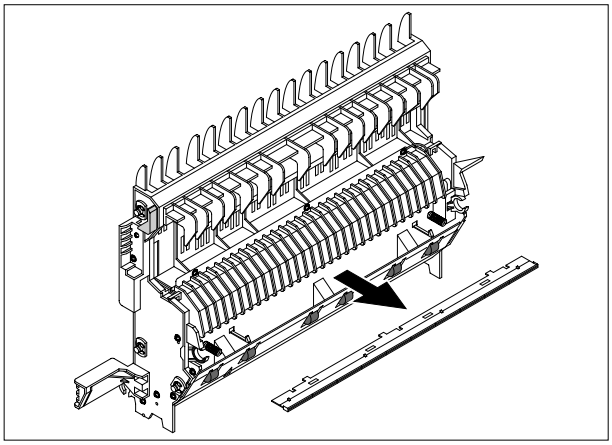
5. Pull the lever shown as the picture, remove the E-ring and 1 screw, and then remove the duplex base.



6. Take out the transfer roller from the lock by pulling it out to the front with holding both ends.

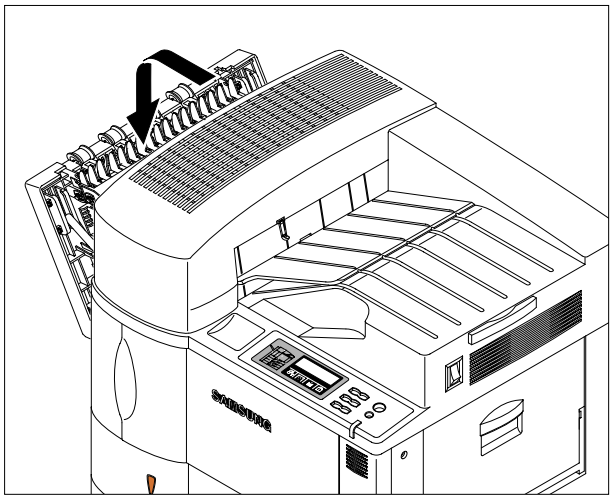


7. Take out the detach saw to the front shown as below.

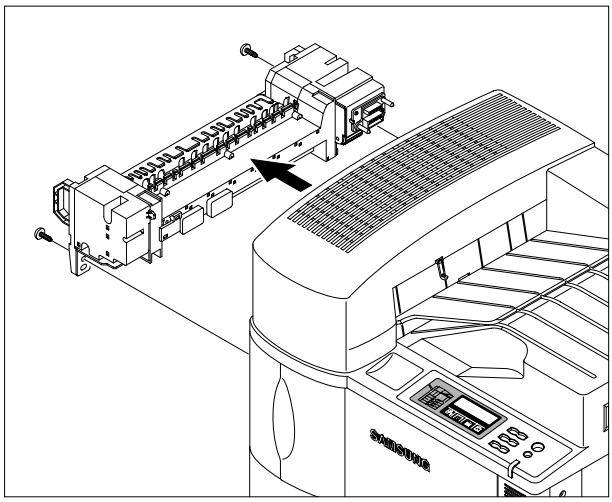


4.22 Disassembly of the Fuser

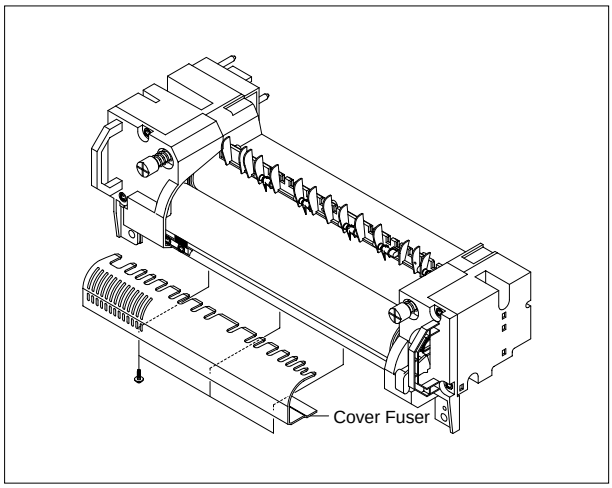
1. Open the duplex.



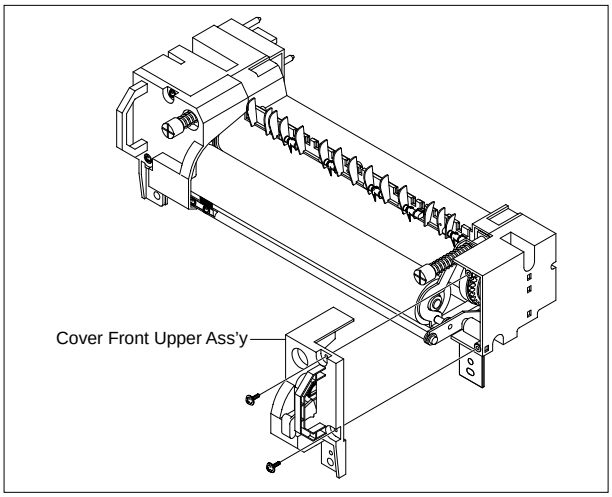
2. Release 2 screws, and then pull it out to the front.



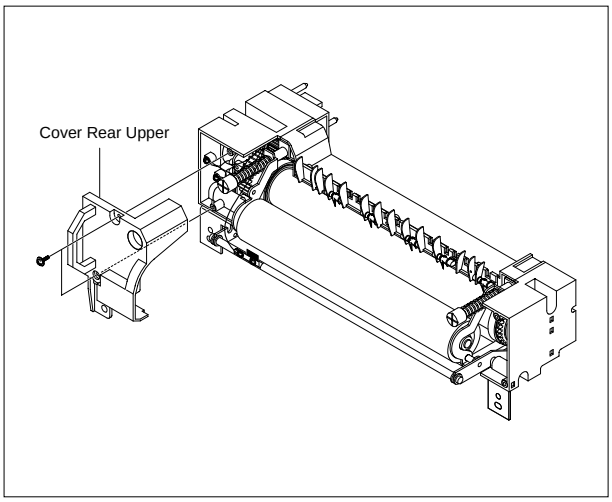
3. Remove 2 screws from the fuser Ass'y, and take out the cover fuser.



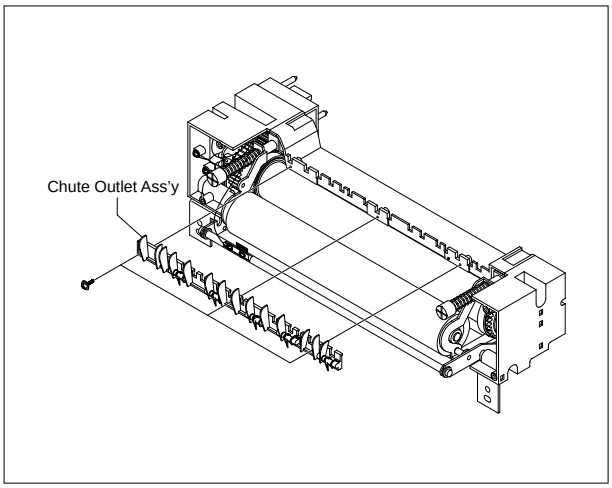
4. After releasing 2 screws, take out the cover front upper Ass'y.



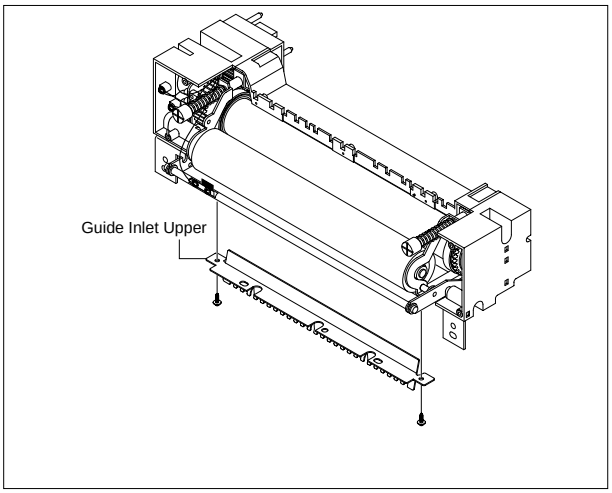
5. Remove 2 screws, and remove the cover rear upper.



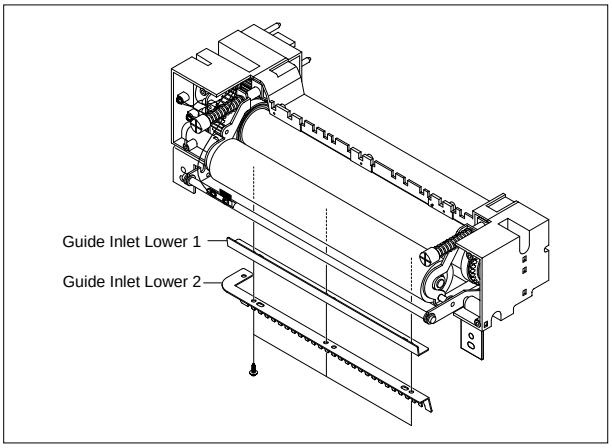
6. Remove 3 screws, and remove the chute outlet Ass'y.



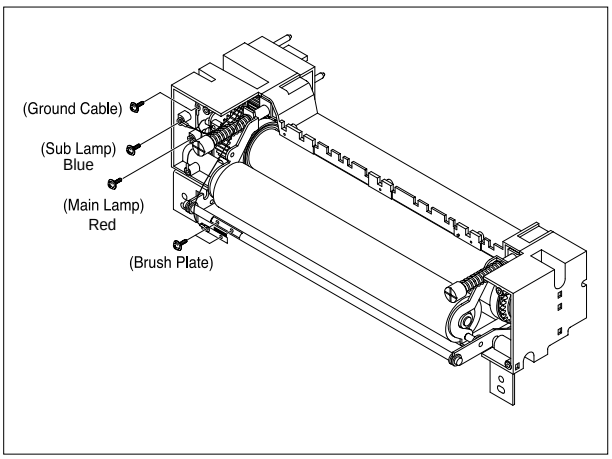
7. Remove 2 screws from the bottom of the fuser Ass'y, and remove the guide inlet upper.



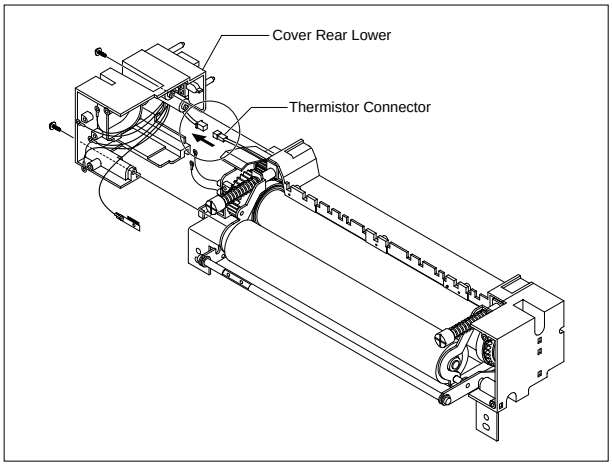
8. Remove 3 screws from the bottom of the fuser Ass'y, and remove the guide inlet lower 1 and 2.



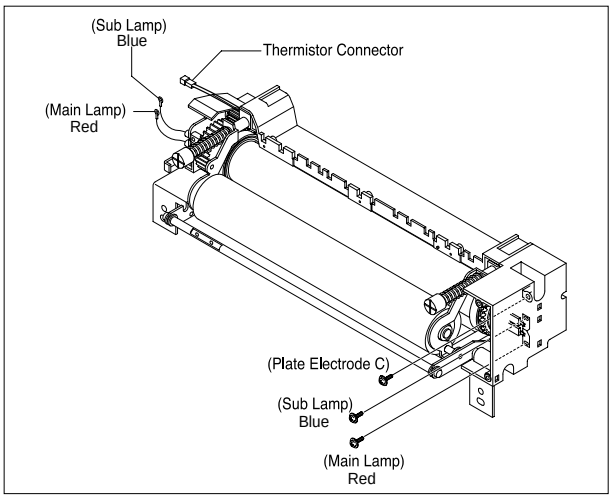
9. Remove all screws connect the cover rear lower to the halogen lamp (2 screws), to the brush plate (2 screws), and to the ground Babel (1 screw).



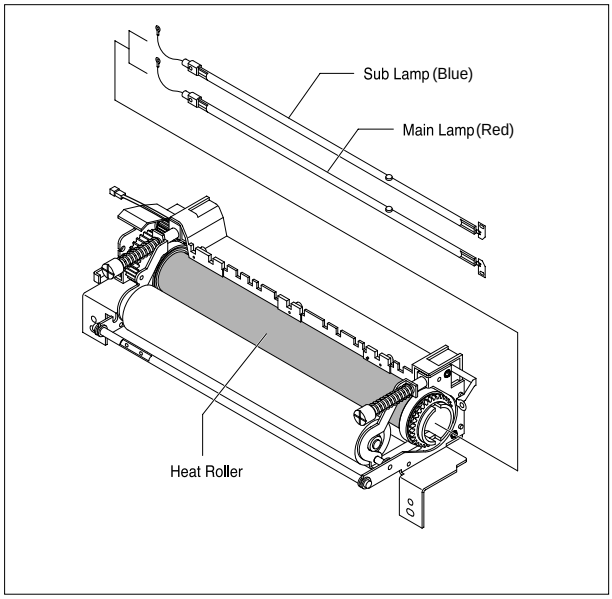
10. Remove 2 screws from the cover rear lower shown as below, 1 connector (the harness fuser to the thermistor), and then the cover rear lower.



11. Remove all screws connect inside of the cover front lower to the halogen lamp (2screw) and to the plate electrode C (1 screw).

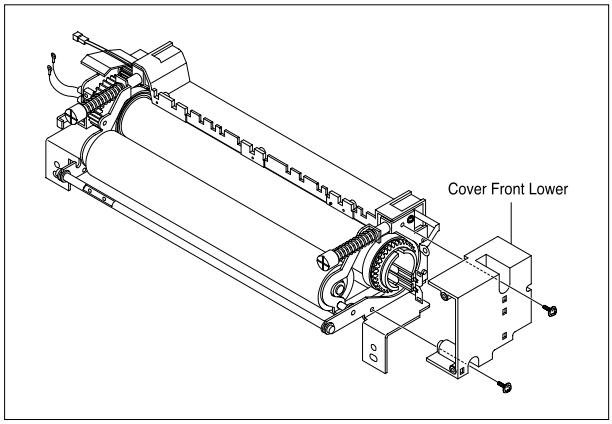


12. Take out 2 halogen lamps from the heat roller carefully.

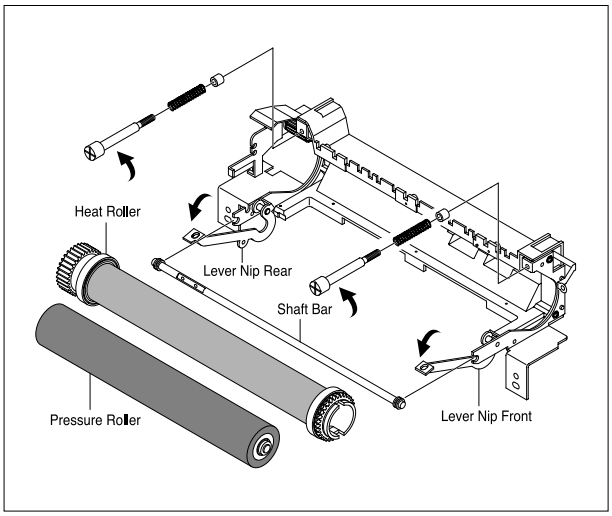


Warning : Each lamp has different size.
When reassembling the lamps, be careful not to change the positions.

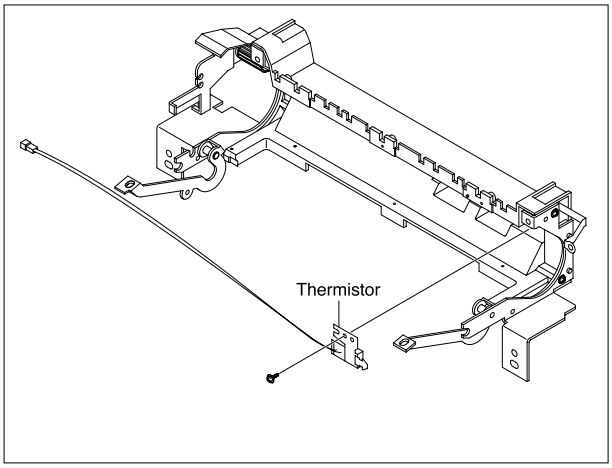
13. Remove 2 screws from the cover front lower shown as below, and remove the cover front lower.



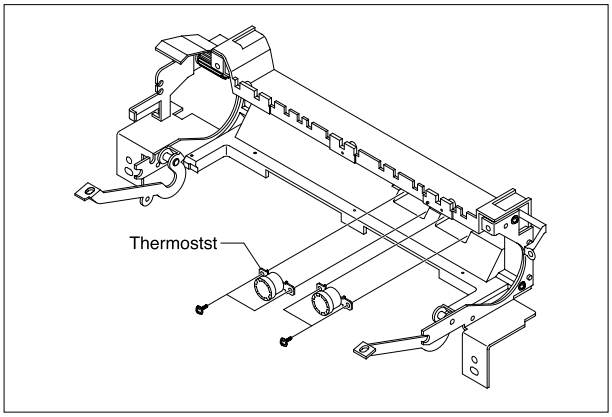
14. Remove 2 screws from the both side, and remove the shaft bar. Open the lever nip front and the rear, and then remove the pressure roller and the heat roller.



15. Remove 1 screw from inside of the frame fuser sub shown as below to take out the thermistor.



16. Remove 4 screws from the frame fuser sub, and then remove the 2 Thermostats.



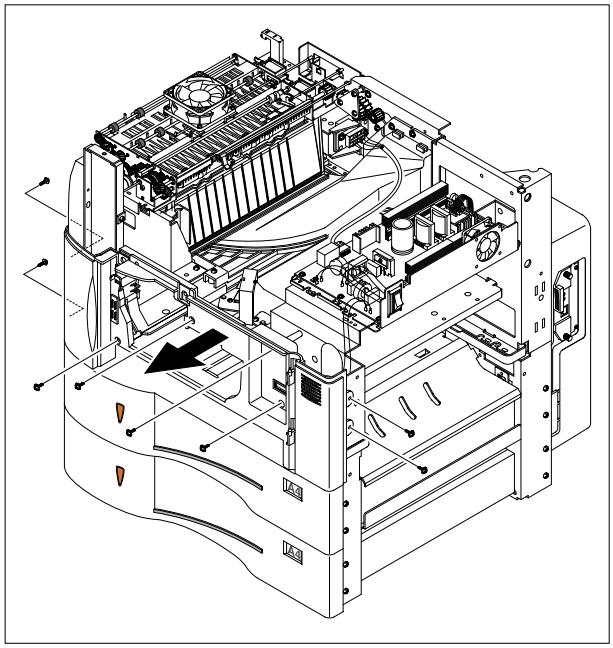
4.23 Disassembly of the Front cover and Front cover open sensor

1. Before disassembling the front cover and the front cover open sensor, remove those written in the below.

   - The tope cover (Refer to the 4.4)
   - The RH cover (Refer to the 4.16)
   - The Take-away unit (Refer to the 4.20)
   - The duplex (Refer to the 4.21)

2. Remove 4 screws from the front and 4 screws from the right/left side.

3. Remove the sensor (Hook type) from the engine frame.

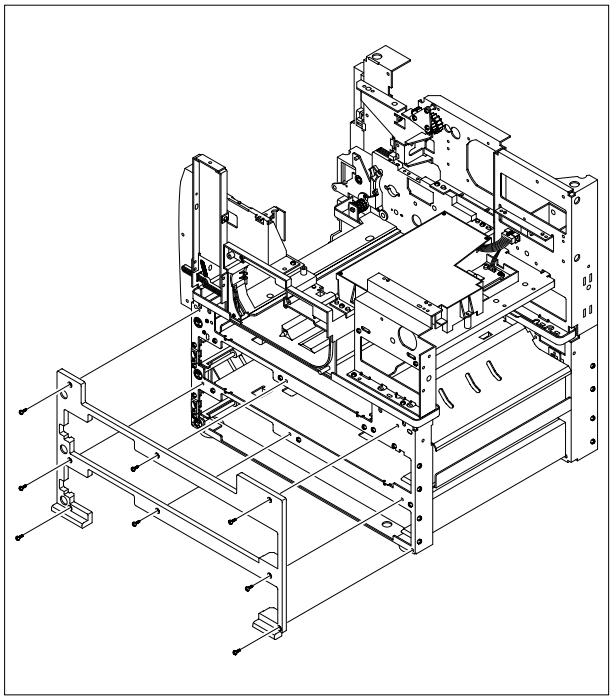


4.24 Disassembly of the Inner cover

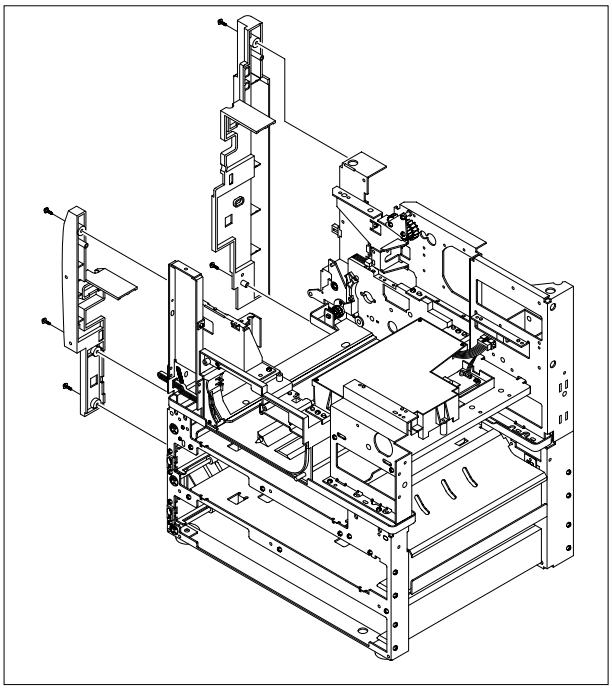
1. Before disassembling the inner cover, remove those written in the below.

- The top cover (Refer to the 4.4)
- The front door (Refer to the 4.7)
- The cassette
- The rear cover (Refer to the 4.13)
- The RH cover (Refer to the 4.16)
- The Take-away unit (Refer to the 4.20)
- The duplex unit (Refer to the 4.21)
- The front cover (Refer to the 4.23)

2. Remove 8 screws, and then remove the inner cover.



3. Remove 5 screws, and then remove the inner cover (Back-Front).

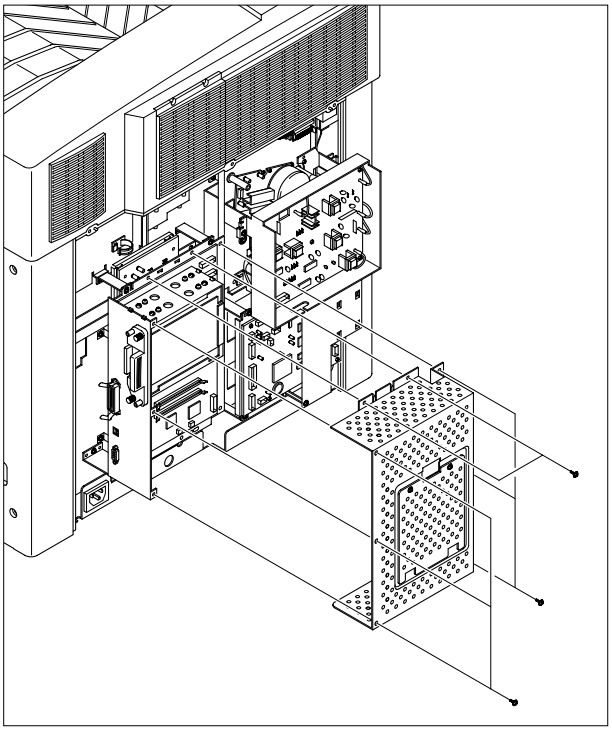


4.25 Disassembly of the Controller

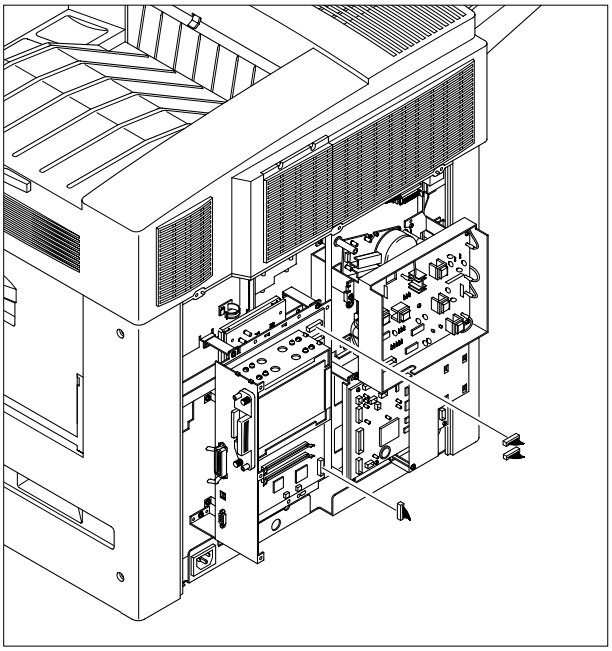
1. Before disassembling the controller, remove it written in the below.

 • The rear cover (Refer to the 4.13)

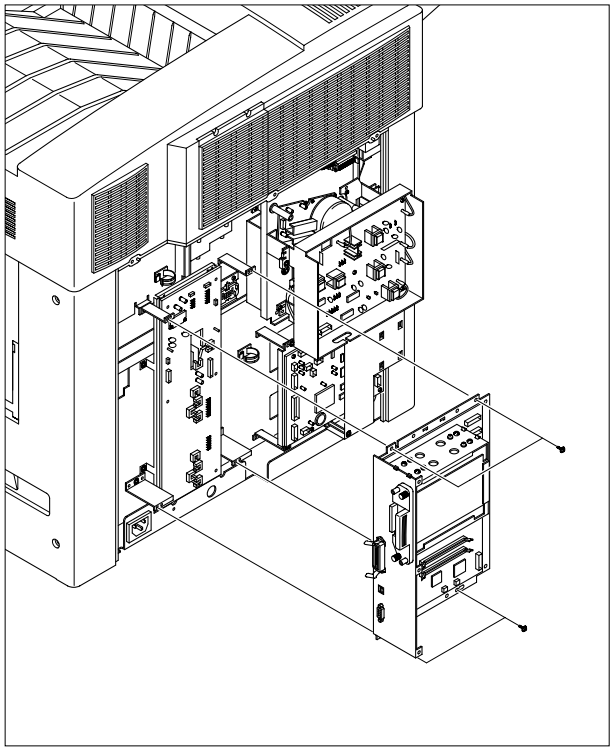
2. Remove 8 screws to take out the cover.



3. Disconnect 3 connectors.



4. Remove 4 screws to take it out.

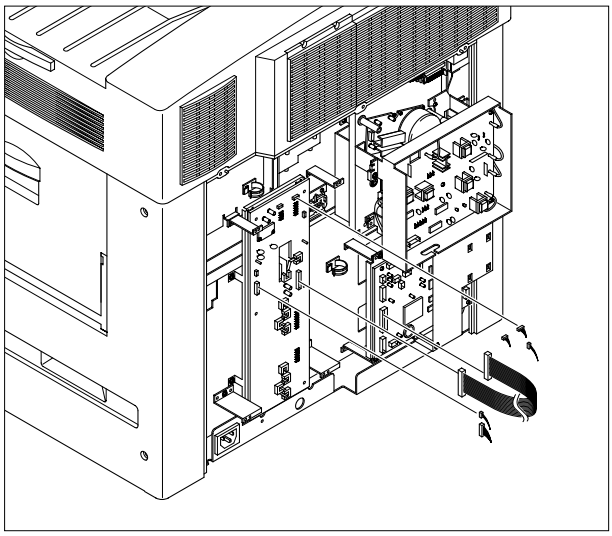


4.26 Disassembly of the Paper Size PBA and HVPS

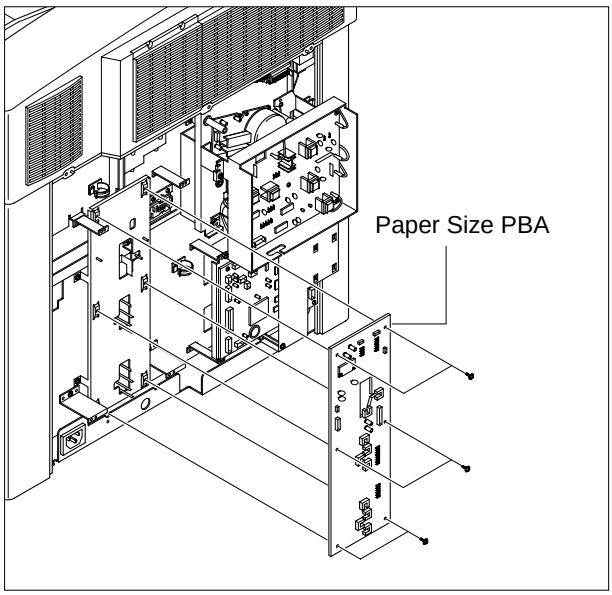
1. Before disassembling the paper size PBA and HVPS, remove those written in the below.

   • The rear cover (Refer to the 4.13)
   • The controller (Refer to the 4.25)

2. Disconnect all connectors.

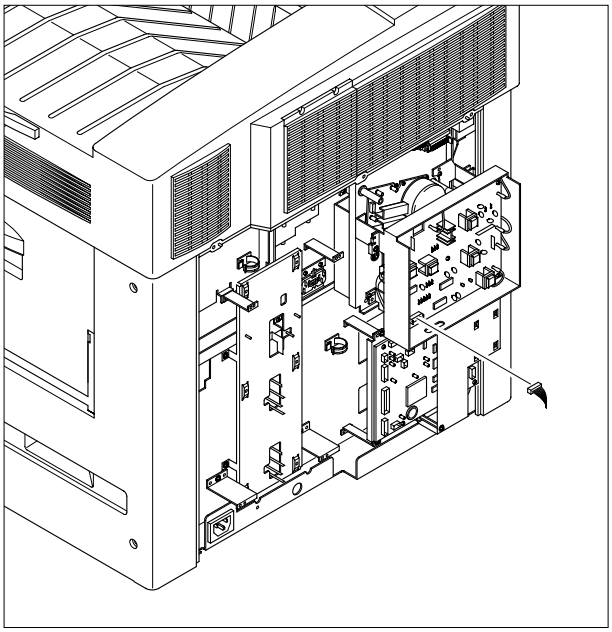


3. Remove 6 screws, and then remove the actuator carefully.

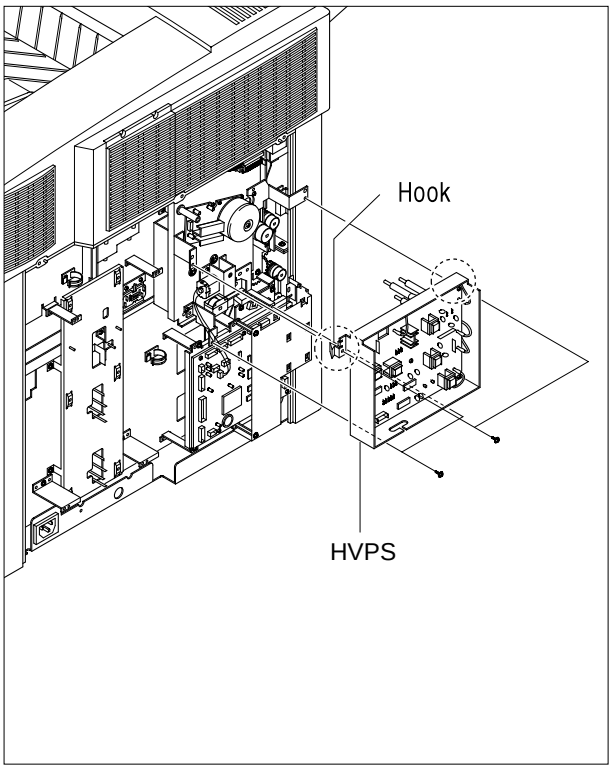


Warning : Two cassettes must be open when reassembling.

4. Disconnect all connectors.



5. Remove 4 screws, and slightly push the hooked bracket to release the hook. Be careful with 2 hooks in upper position.

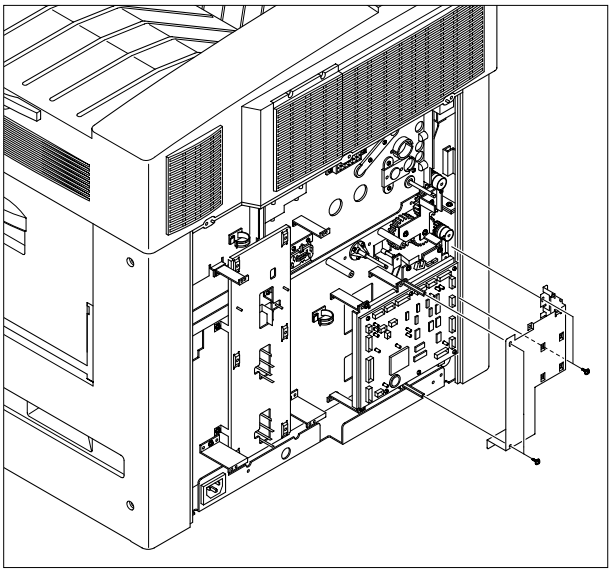


4.27 Disassembly of the Option interface PBA and Engine PBA

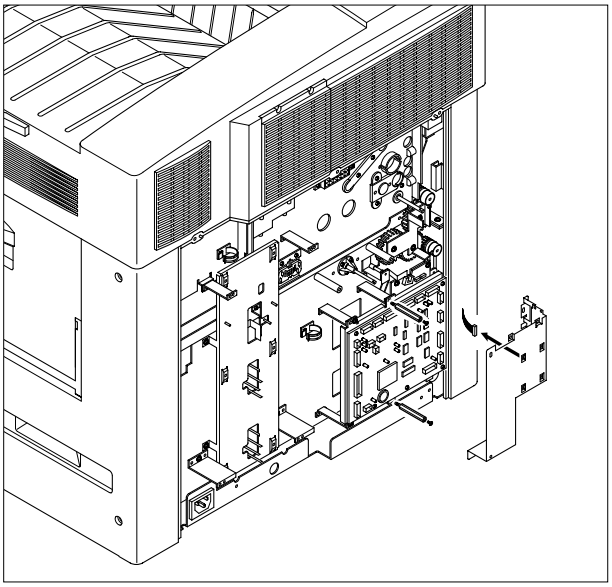
1. Before disassembling the option interface PBA and the engine PBA, remove it written in the below.

   • The rear cover (Refer to the 4.13)

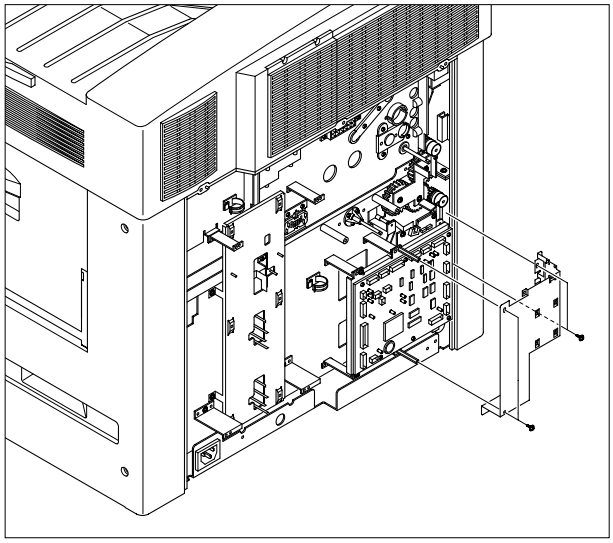
2. Remove 4 screws.



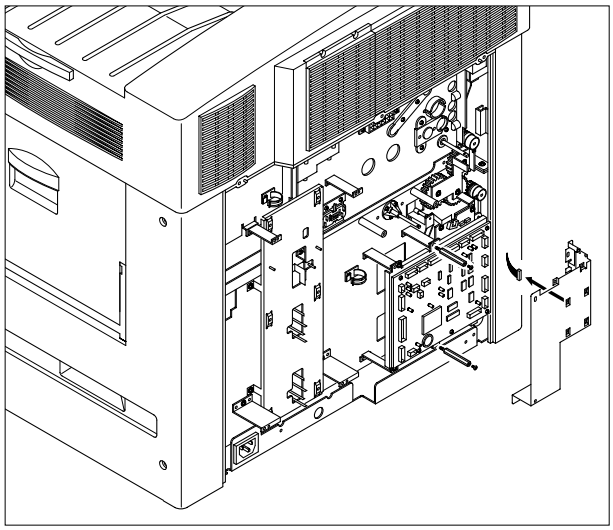
3. Disconnect 1 connector.



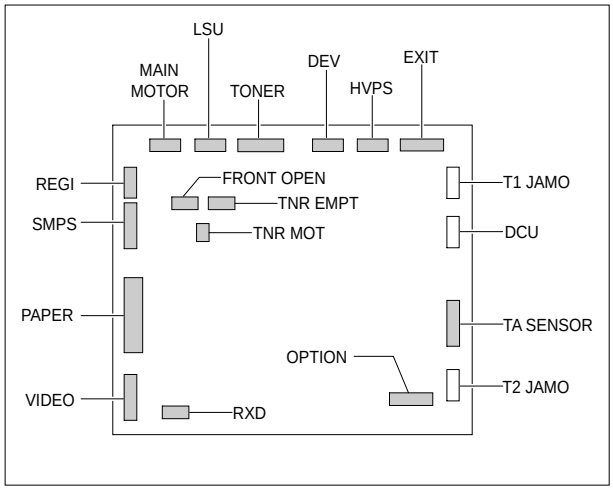
4. Disconnect all connectors.



5. Remove 4 screws to take out the engine board ass'y.



6. The block diagram of connectors is shown as below.

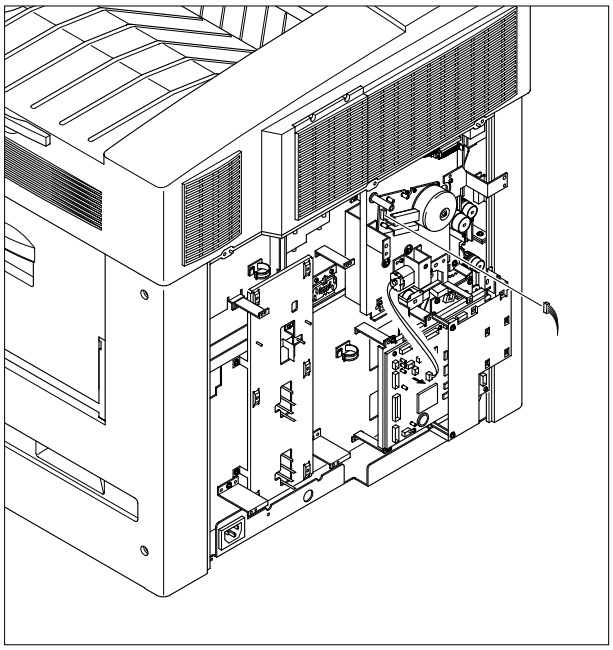


4.28 Disassembly of the Drive

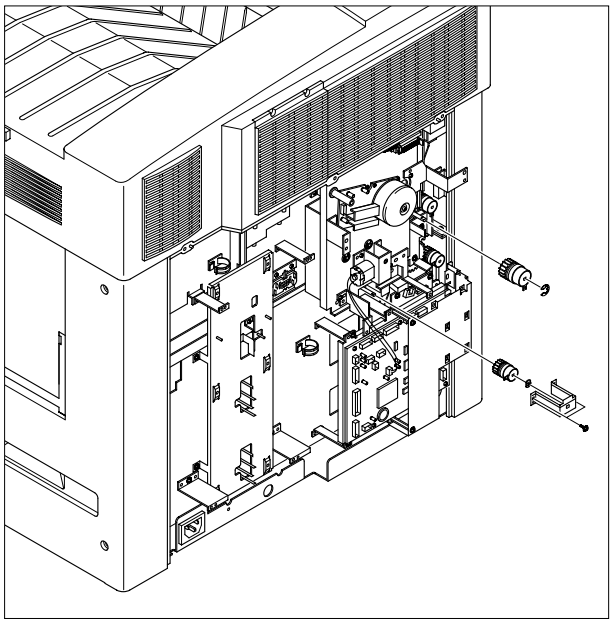
1. Before disassembling the drive, remove those written in the below.

   • The top cover (Refer to the 4.4)
   • The rear cover (Refer to the 4.13)
   • The HVPS (Refer to the 4.26)

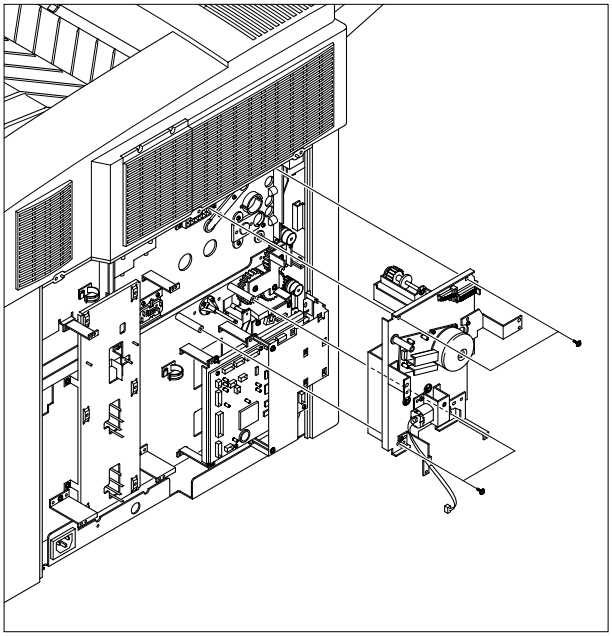
2. Disconnect 2 connectors.



3. Remove 2 clutches shown as below.



4. Remove 4 screws.

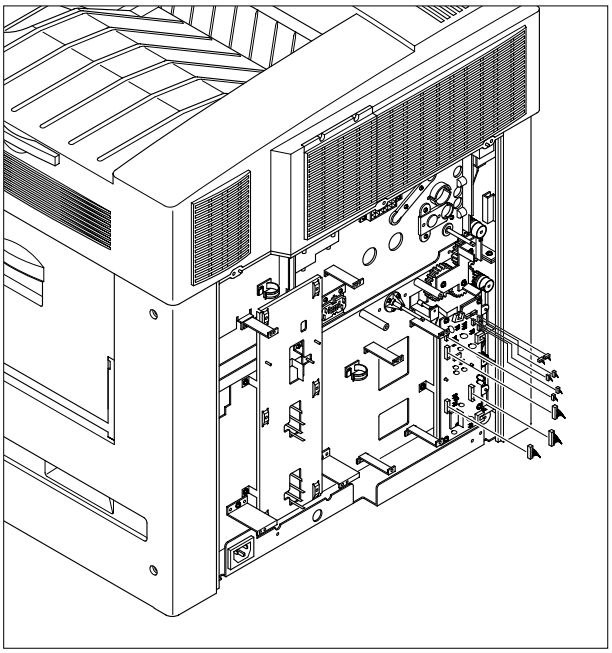


4.29 Disassembly of the Take-away PBA

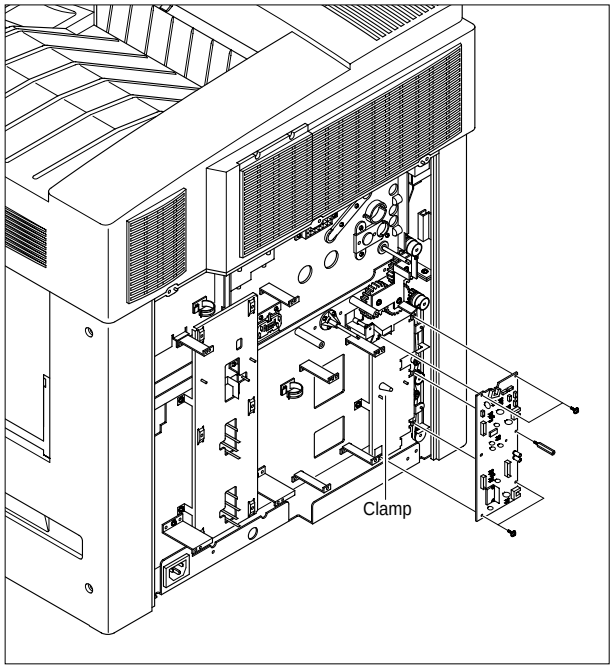
1. Before disassembling the take-away PBA, remove those written in the below.

   • The rear cover (Refer to the 4.13)
   • The option board (Refer to the 4.27)
   • The engine board (Refer to the 4.27)

2. Disconnect all connectors.



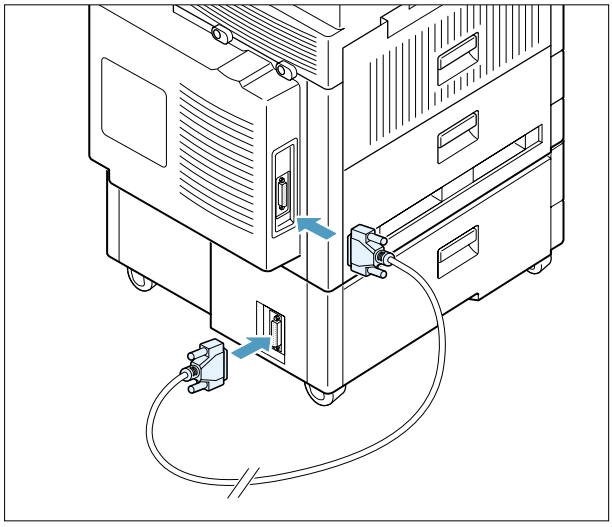
3. Remove 5 screws and 1 clamp.



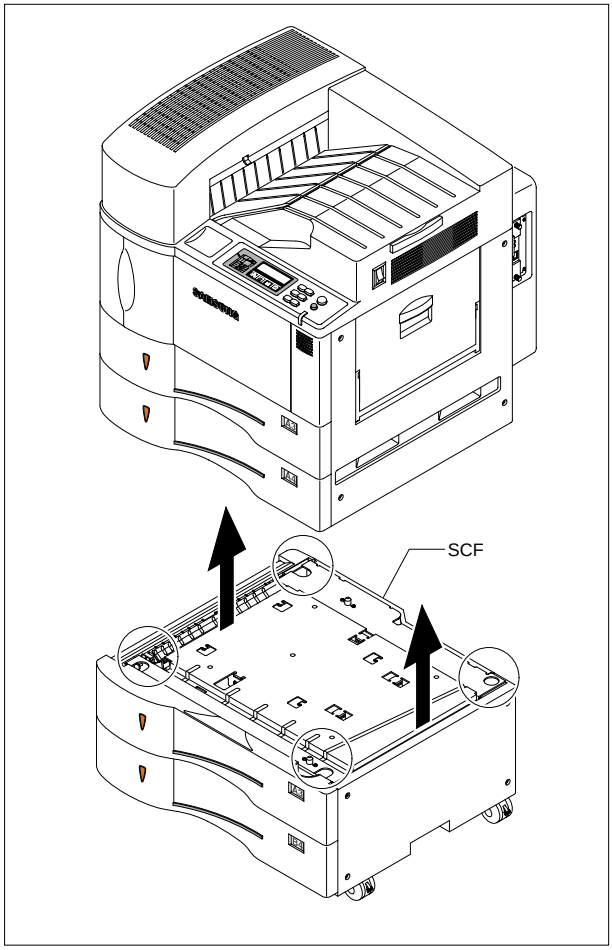
4.30 Disassembly of SCF

4.30.1 SCF

1. Remove the SCF cable from the set and SCF.

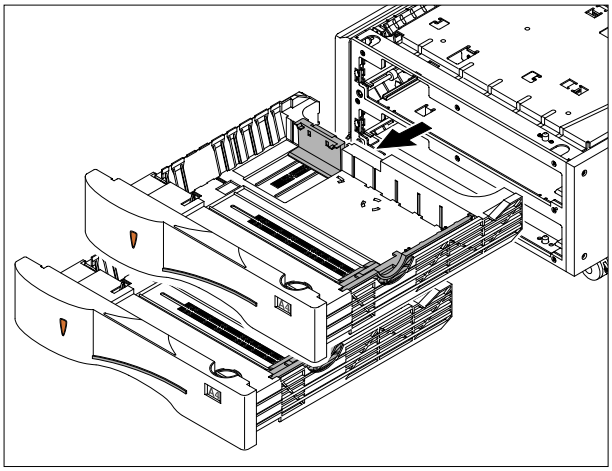


2. Remove the SCF by lifting up the machine. Be careful with the connecting home of the SCF and connector.

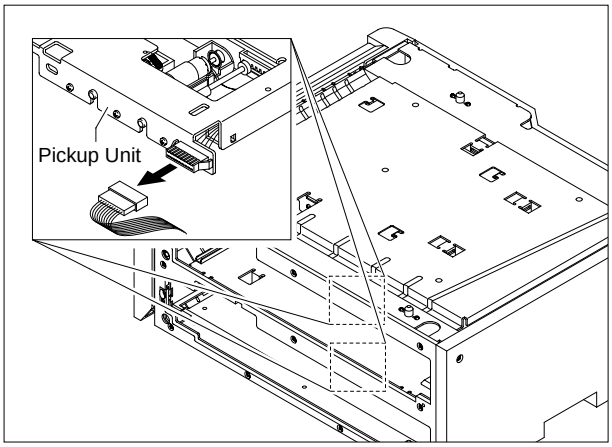


4.30.2 Pickup Unit

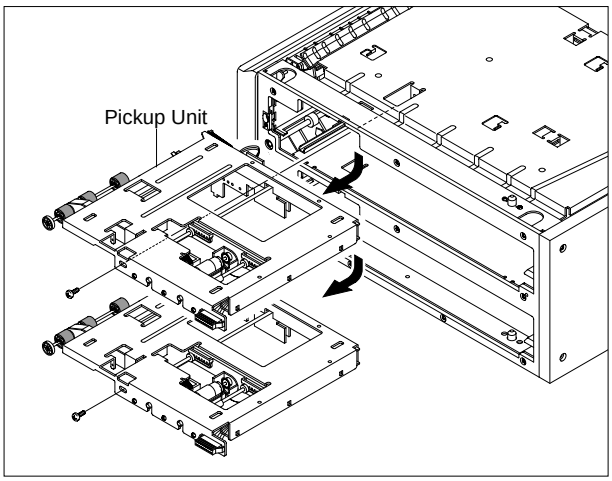
1. Remove the cassette.



2. Remove 2 connectors from the SCF shown as below.

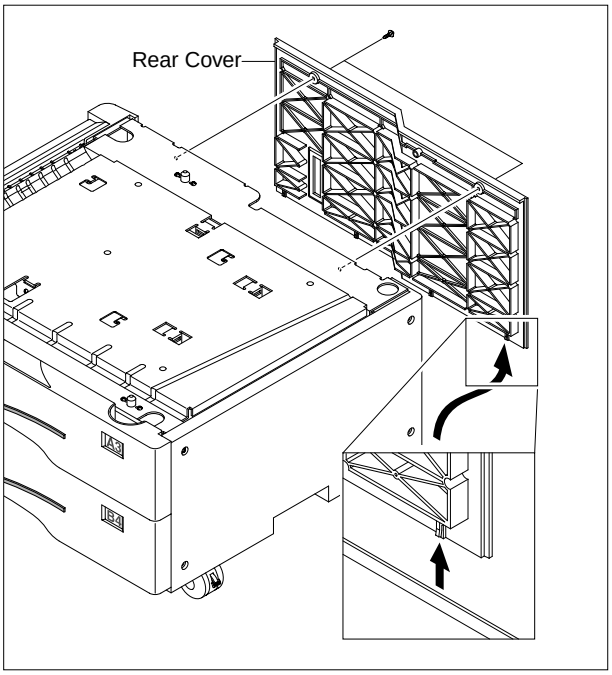


3. Remove 2 screws from the SCF, and then pull out the Pickup unit to the front shown as below.



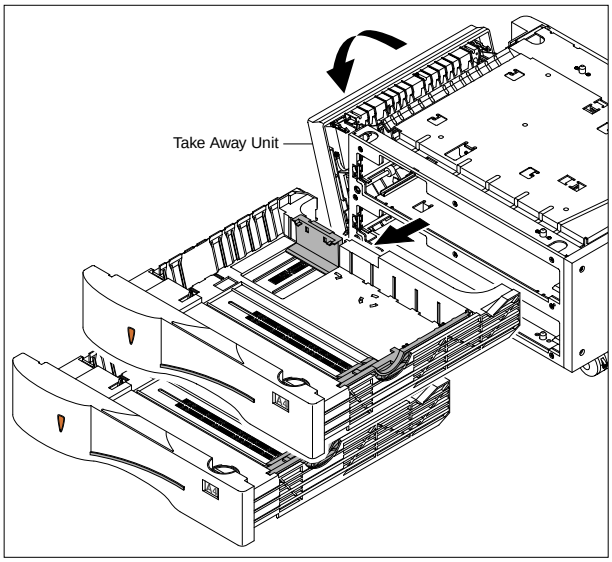
4.30.3 Rear Cover

Remove 2 screws from the top, and then lift up the lock shown as below to take out the rear cover.

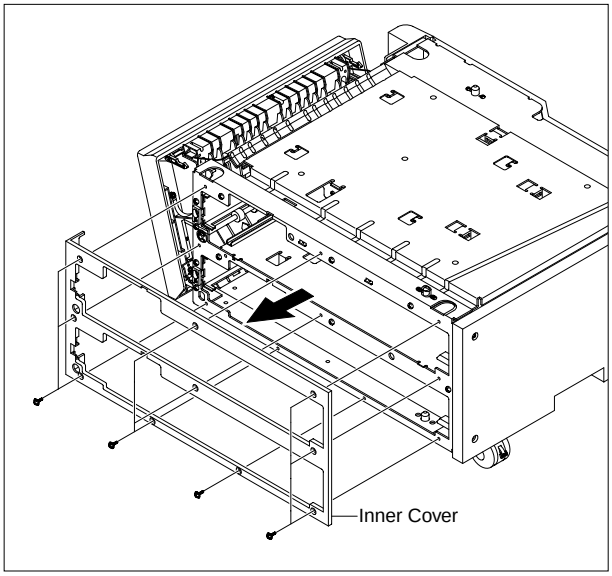


4.30.4 Inner Cover

1. Remove the cassette, and open the take away unit.

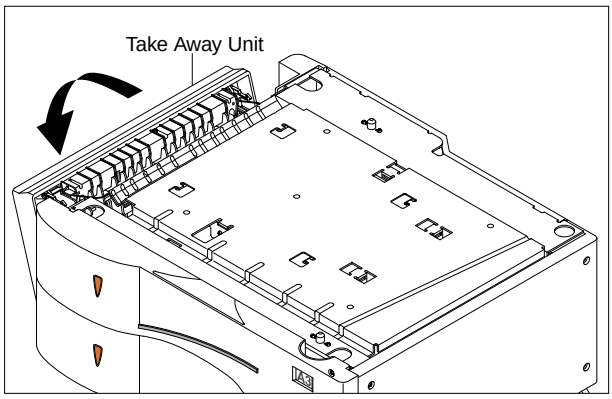


2. Remove 10 screws, and take out the inner cover shown as below.

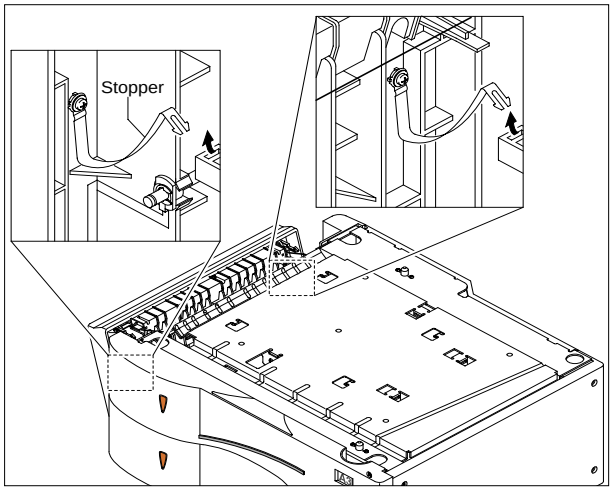


4.30.5 Take Away Unit

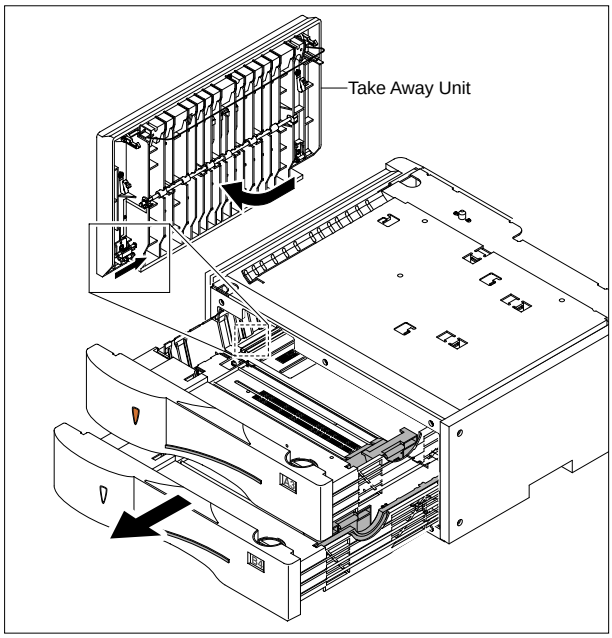
1. Open the take away unit.



2. Remove the both stoppers on the left/right.



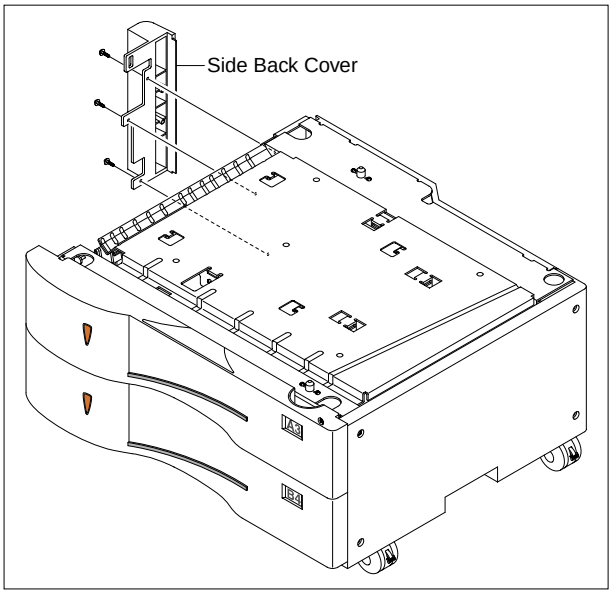
3. Open the cassette. While pushing the latch on the bottom right, remove the latch on the bottom left first, and then remove the take away unit toward to the front.



4.30.6 Side Back Cover

1. Remove the take away unit. (Refer to the 4.30.6)

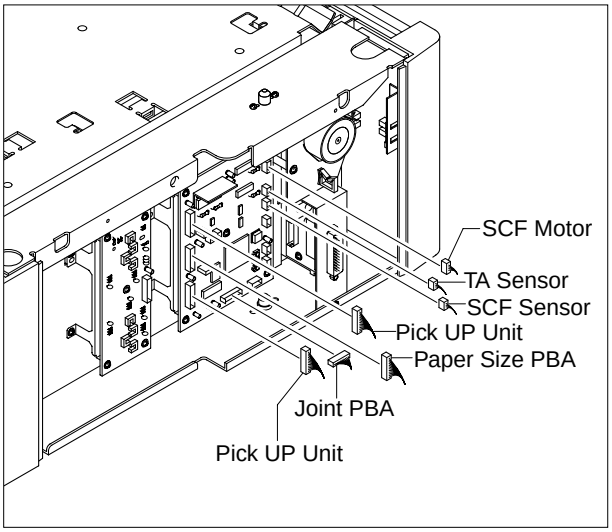
2. Remove 3 screws, and then remove the side back cover.



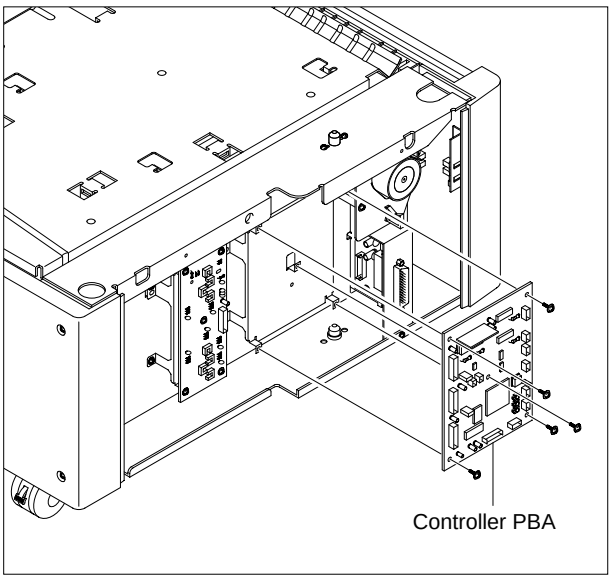
4.30.7 Controller PBA

1. Remove the rear cover. (Refer to the 4.30.3)

2. Remove the all connectors.



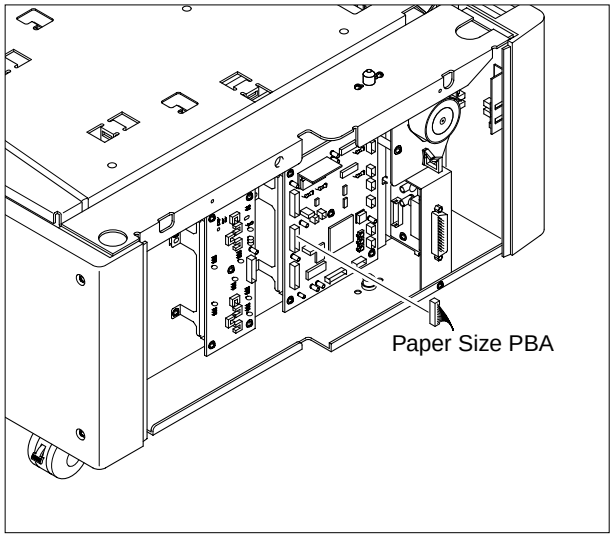
3. Remove 5 screws, and then the controller PBA.



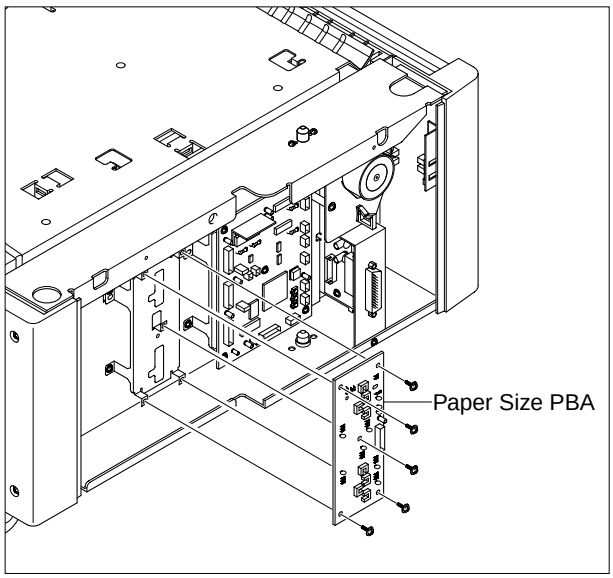
4.30.8 Paper Size PBA

1. Remove the rear cover. (Refer to the 4.30.3)

2. Disconnect 1 connector from the controller PBA.



3. Remove 5 screws, and then the paper size PBA.

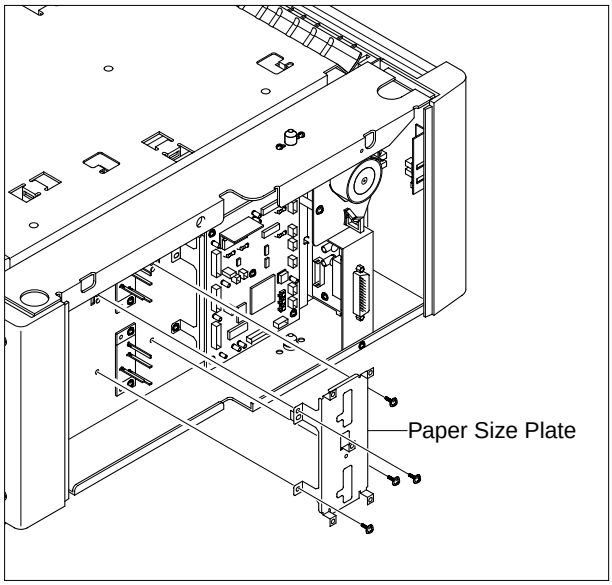


Warning : Two paper cassettes must be open when reassembling it.

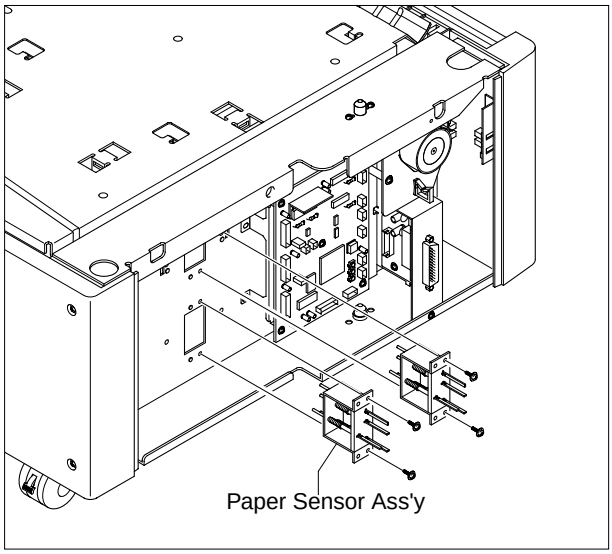
4.30.9 Paper Sensor Ass,y

1. Remove the rear cover and the paper size PBA. (Refer to the 4.30.3/4.30.9)

2. Remove 4 screws, and then the plate.



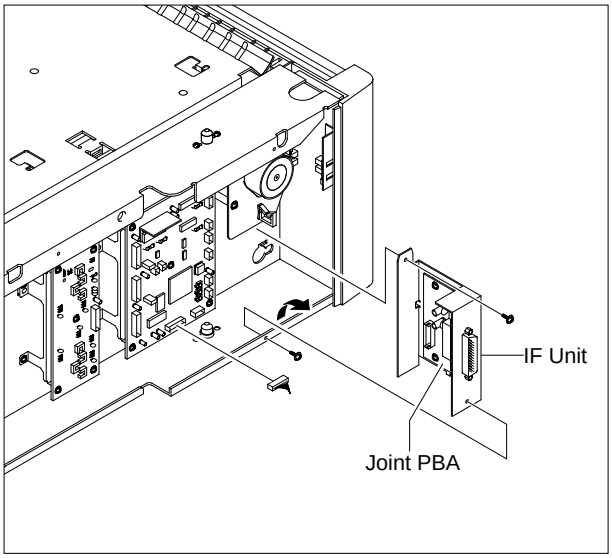
3. Remove 4 screws, and then 2 paper sensor ass'y in carefulness.



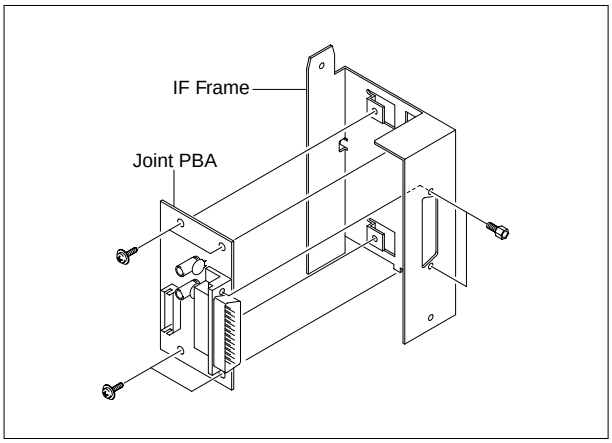
4.30.10 SCF Joint PBA

1. Remove the rear cover. (Refer to the 4.30.4)

2. Disconnect 1 connector from the controller PBA, and remove 2 screws. Take out the IF unit shown as below.



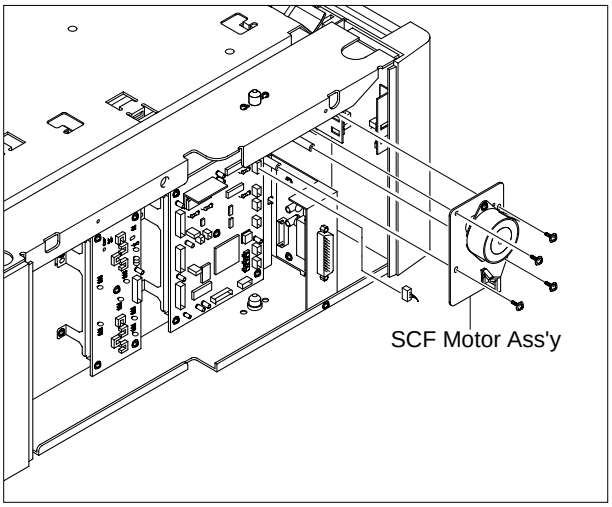
3. Remove 6 screws, and then remove the joint PBA from the IF frame.



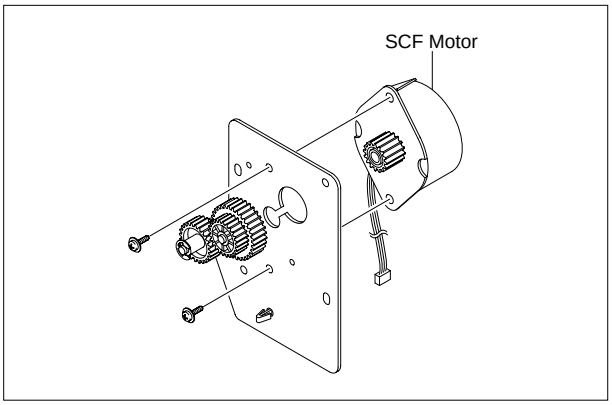
4.30.11 SCF Motor Ass'y

1. Remove the rear cover. (Refer to the 4.30.3)

2. Disconnect 1 connector from the controller PBA. Remove 4 screws, and then take out the SCF motor ass'y.



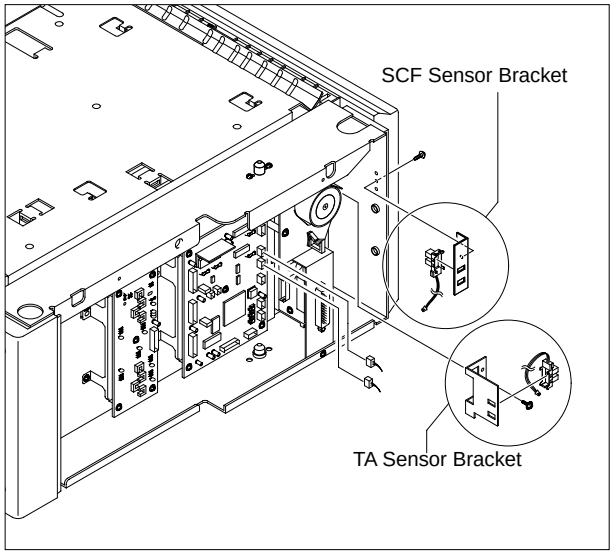
3. Remove 2 screws, and then motor shown as below.



4.30.12 Sensor Bracket

1. Remove the rear cover and the side back cover. (Refer to the 4.30.3/4.30.7)

2. Disconnect 2 connectors from the controller PBA. Remove 2 screws, and then take out the SCF sensor bracket and TA sensor bracket shown as below.



5. Maintenance

5.1 Maintenance of the Drum cartridge

The consumables consist of the toner cartridge and the drum cartridge. The toner cartridge yield is 25,000 sheets. (A4, 5% standard)

The Drum yield is 50,000 sheets (A4, 5% standard).This section describes the installation of the drum and toner. Check the running state by printing the configuration page.

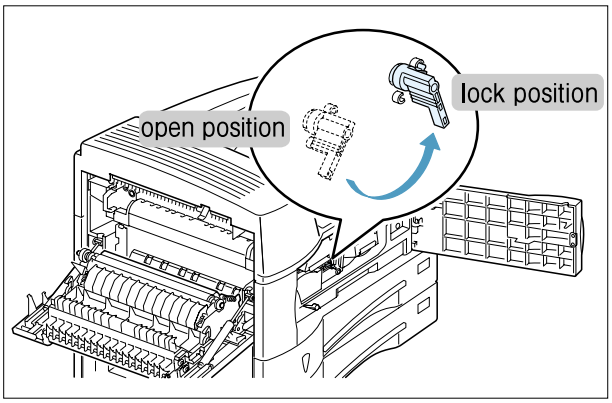
5.1.1 Way to replace the Toner cartridge and drum cartridge

The **TONER LOW** will be displayed when the toner is almost empty.

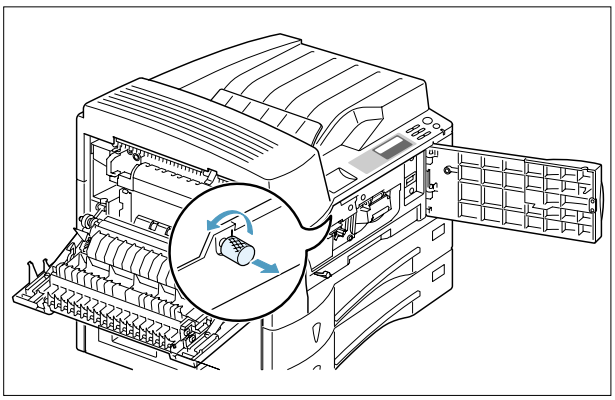
The toner can still be used, but it should be replaced or the print quality will drop.

Open the duplex cover on the left of the printer and the developing unit cover.

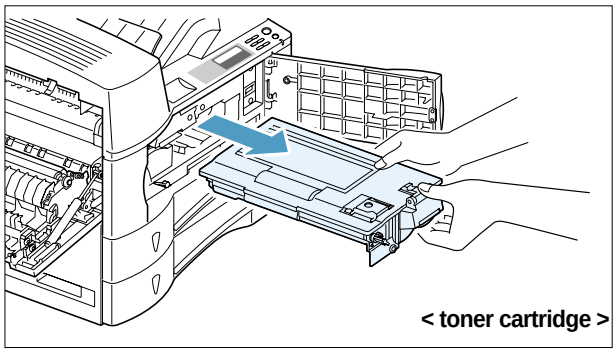
1. Locate the lock of the toner cartridge to the lock position.



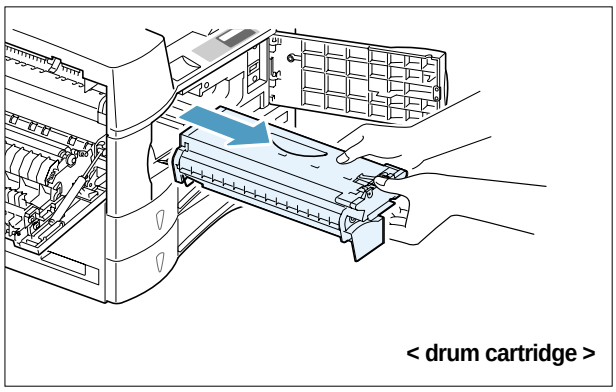
2. Remove screws from the drum cartridge if attempting to replace the drum cartridge.



3. Carefully take out toner cartridge and remove.



4. Carefully take out Drum cartridge and remove.

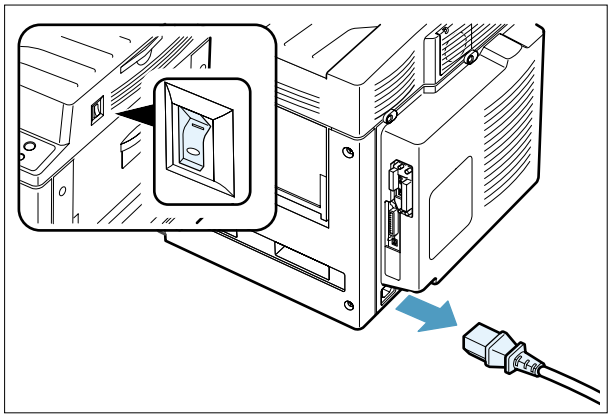


5.2 Controls and Clean

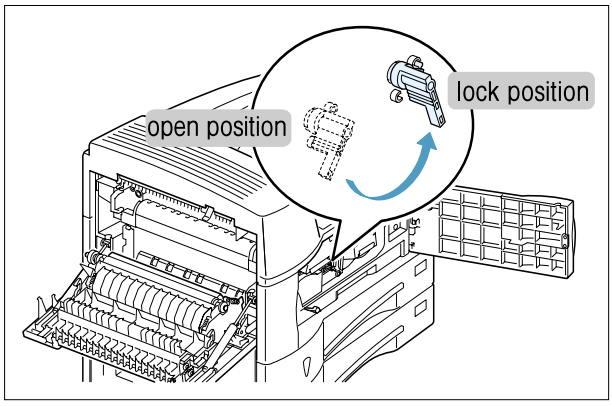
If the printer becomes dirty with toner powder or if there are printing quality problems after replacing the cartridge, clean inside of the printer. Clean the printer regularly to maintain the printer in proper working condition.

5.2.1 Cleaning the inner side of the printer

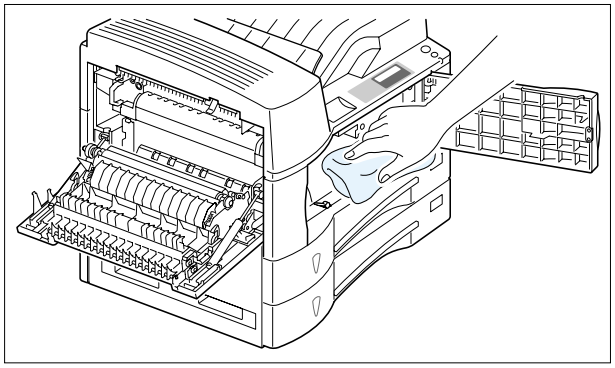
1. After turning off the power, disconnect the cable.



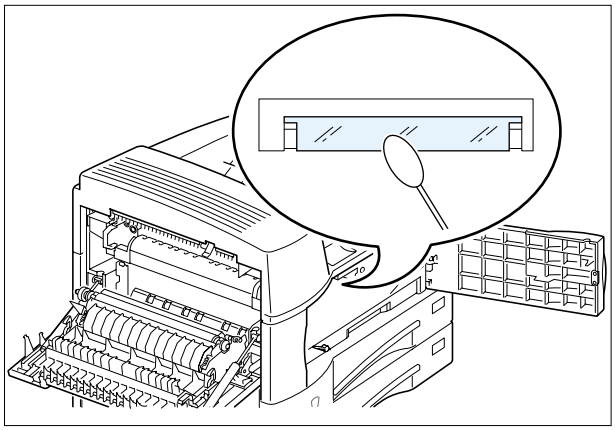
2. Open the duplex cover and the developing unit cover. Locate the lock of the toner cartridge to lock position.



3. Take out the toner cartridge and the drum cartridge, and clean up the toner powder, paper dust, and etc. with dry fabric.

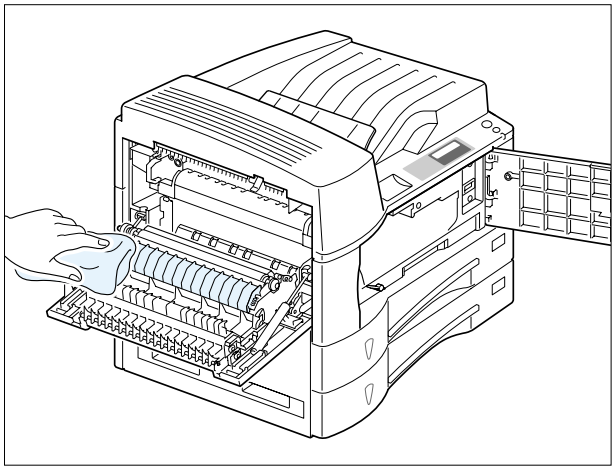


4. Clean the glass with cotton swab or dry fabric.



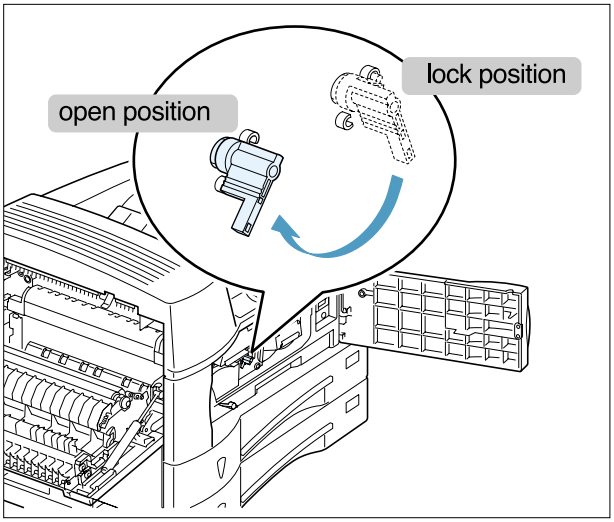
Warning : Be careful not to scratch the surface of the glass or leave any dust.

5. Clean all other parts with the dry fabric, except the roller on the left side.



Warning : Do not clean the roller.

6. Insert the toner cartridge and drum cartridge to the printer, and turn the lock to open position.

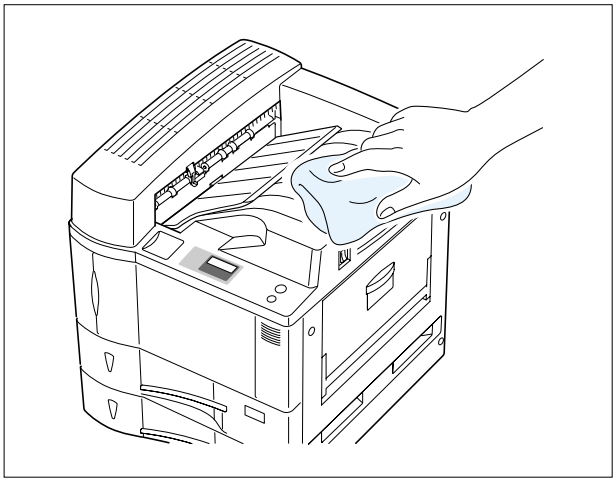


7. Close the covers (Duplex and developing unit).

5.2.2 Cleaning the outside of the printer

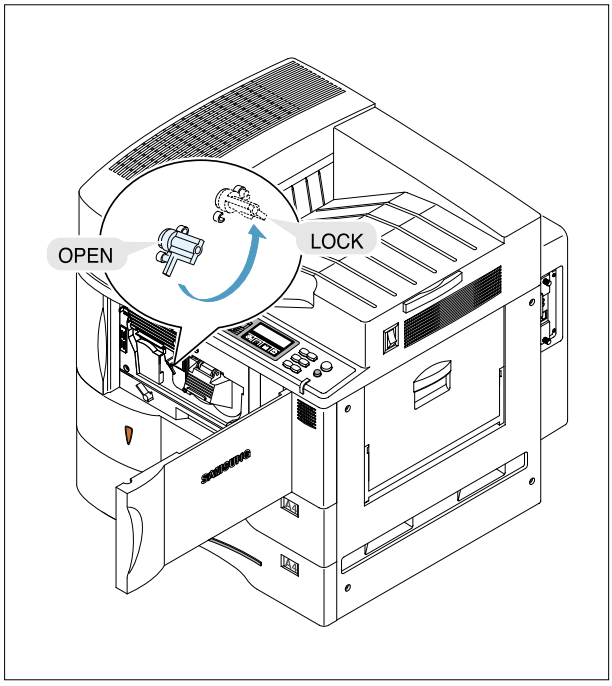
Turn the power off, and then disconnect the cables.
Clean the case with moist fabric.
Clean it once more with dry fabric.

Warning : Do not use alcohol or thinner when cleaning it.

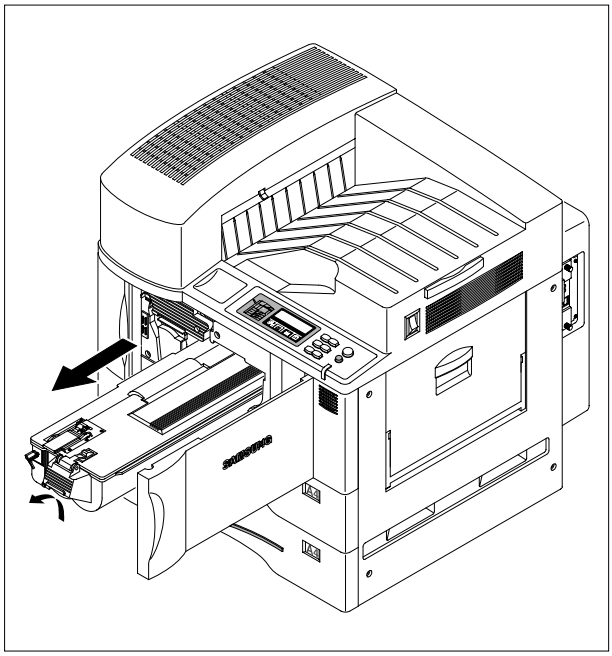


5.2.3 Ways to clean the Toner empty sensor

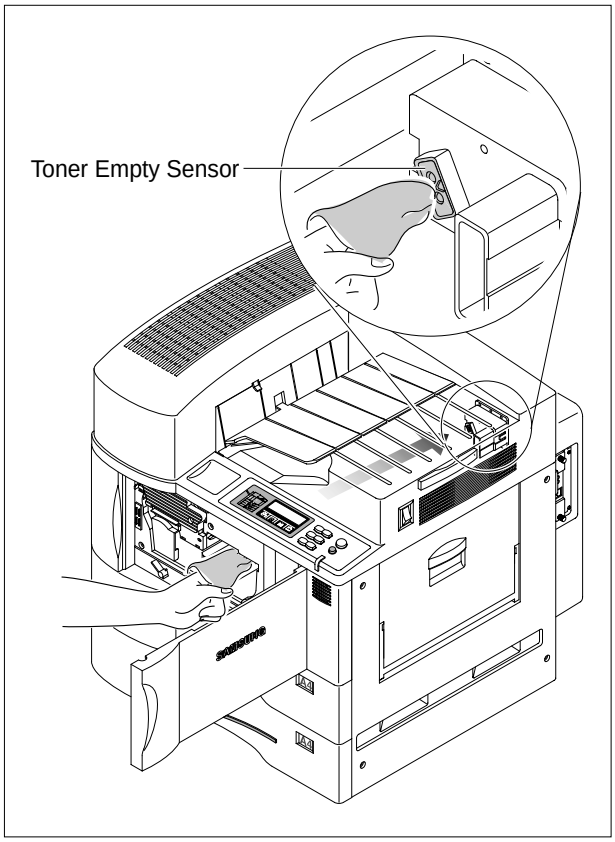
1. Turn the handle of the toner open/close door to the lock position.



2. Take out the toner container by pulling it out toward the front while lifting the handle up as shown below.



3. Clean the toner empty sensor with soft fabric by putting your hand inside of where you take out the toner container.



5.3 Solution for paper jam

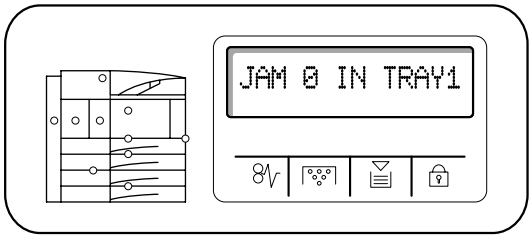
The jam message will be displayed when the paper jam occurs. The message informs of the place of the paper jam.

Refer to the table to remove the paper jam.

The message on the display window.	The place where the paper jam has occurred.	Solutions
JAM 0 IN xxx	Paper jam in paper tray. Paper pickup. • xxx indicates the feeding place. TRAY 1, TRAY 2, TRAY 3*, TRAY 4*, or MPF will be displayed instead of xxx.	Refer to the **[5.3.1 Paper jam on the feeding unit (Jam 0)]**
JAM 1	• Paper jam on the drum cartridge unit.	Refer to the **[5.3.2 Paper jam on the developing unit (Jam 1)]**
JAM 2 xxx	• Paper jam on the distributing unit. • xxx indicates the place where paper is distributed. The top bin will be displayed.	Refer to the **[5.3.4 Paper jam on the distributing unit (Jam 2)]**
JAM TA IN TRAYx	• Paper jam on the Take Away Cover unit. • The x will be displayed as TRAY 1, TRAY 2, TRAY 3*, or TRAY4*.	
JAM IN MPF TR	• Paper jam on the MPF Tray & MPF TR Tray.	Refer to the **[5.3.5 Paper jam on the MPF Tray (Jam in MPF)]**
JAM DUPLEXx	• Paper jam on the duplex (x indicates the duplex)	Refer to the **[5.3.6 Paper jam on the duplex (Jam duplex)]**

▼ The place where the paper jam has occurred is displayed.

When a paper jam occurs, the jam LED is lit.
The display window indicates of the location of the jam.



▼ Recommended paper :

Media	Maker
Normal paper	Xerox 4024 20lb(75g/m²) Bond Paper
OHP	3M
Label	Xerox

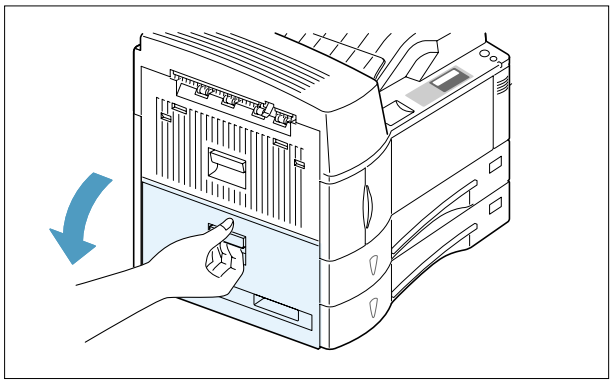
5.3.1 Paper jam on the feeding unit (Jam 0)

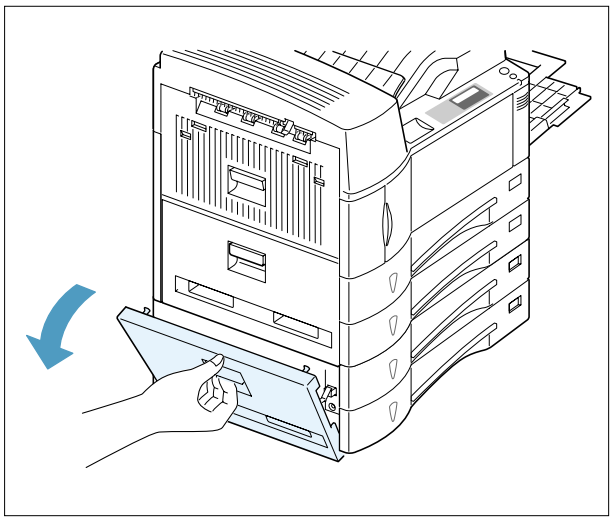
The Jam 0 xxx will be displayed when the jam occurs on the feeding unit.
The xxx indicates the place of the jam. Remove the jammed paper as shown below/in order.

> Warning : When removing the jammed paper, remove it in order. If not, the paper can be torn.

1. Open the cover on the left side of the relevant tray.

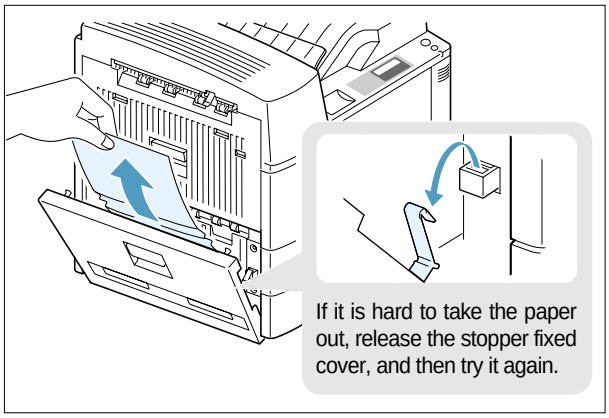
- If the optional tray is used, open the cover on the left side of the optional tray and check for the paper jam. If there is no paper jam, close the cover, and then open the cover on the left side of the basic tray.





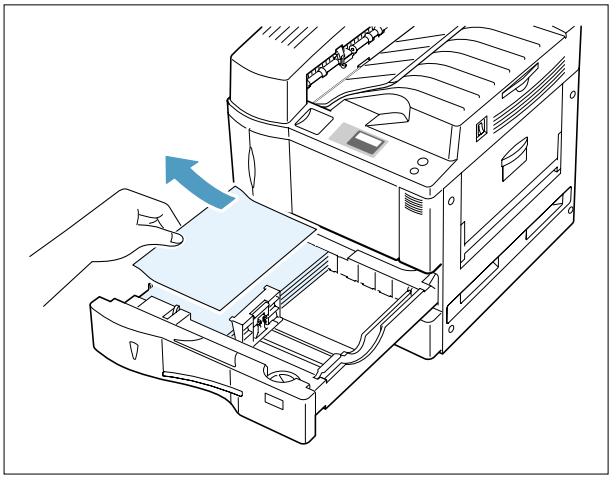
2. Remove the paper slowly.

- If you cannot see it, go on to the step 3.



3. If you cannot see the paper, take out the feeding cassette, remove the paper which failed to feed and then arrange the rest of papers.

- If paper has fed from the MPF, remove the jammed paper.

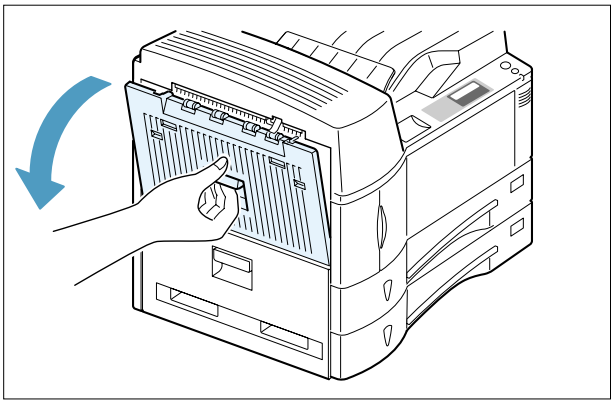


4. If the jammed papers are removed, close the cover on the left. After a short while, printing will restart.

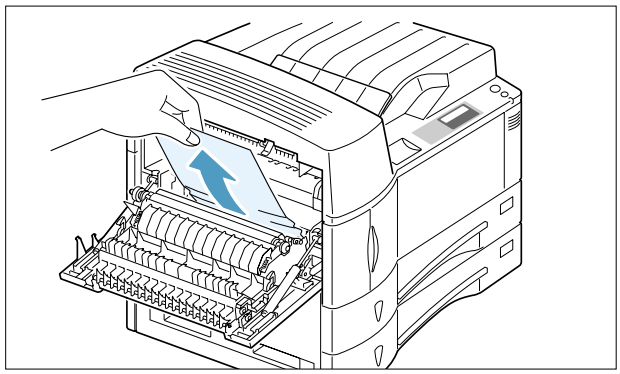
5.3.2 Paper jam on the developing unit (Jam 1)

The jam 1 will be displayed when the jam has occurred on the drum cartridge unit.
Remove the jammed paper in order, as shown below.

1. Open the duplex cover.



2. Remove the jammed paper slowly.



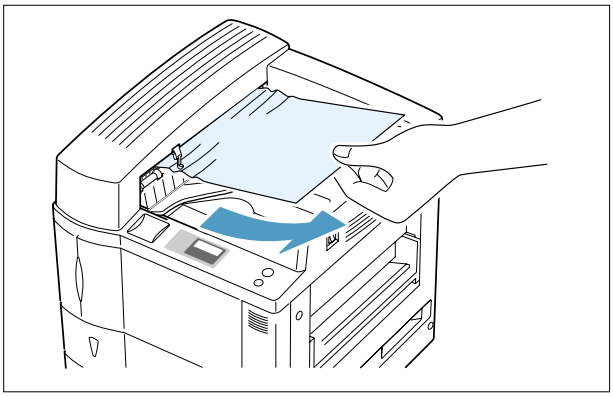
3. After removing all the jammed papers, close the cover. After a short while, printing will restart.

5.3.3 Paper jam on the distributing unit (Jam 2)

The jam 2 will be displayed when the jam has occurred on the distributing unit.

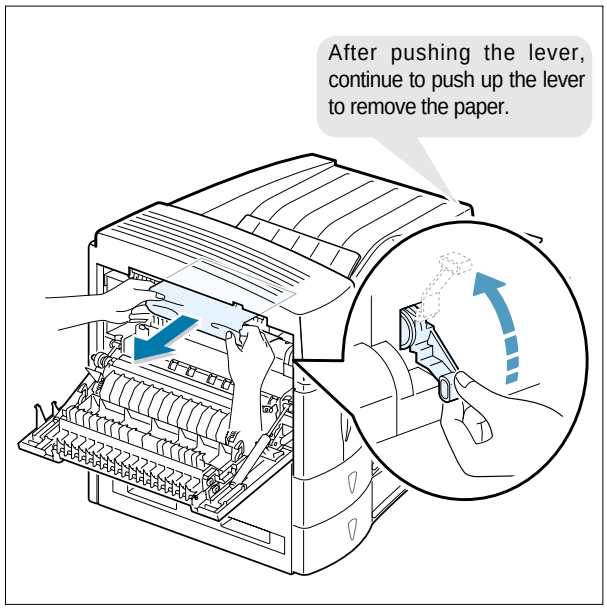
Remove the jammed paper in order, as shown below.

1. Remove the jammed paper slowly. If you cannot see the paper well or remove it well, go to step 2.



2. Open the duplex cover, and then remove the paper.

- When the jammed paper is blocked by the roller, use the roller lever to move the paper from the roller. If the jammed paper is located in the middle of the roller, lift up the lever and pull down the paper while holding the bottom of the paper.

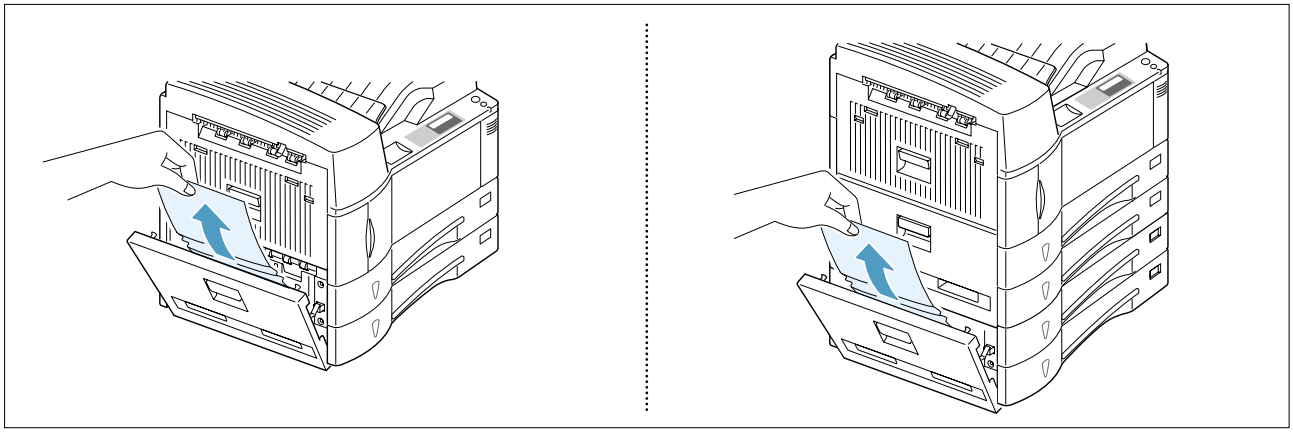


3. After removing all the jammed papers, close the cover. After a short while, printing will restart.

5.3.4 Paper jam on the left cover (Jam TA in Tray)

The jam TA in Tray x will be displayed when the jam has occurred on the left cover. The x is the tray number. Open the left cover relevant to the jam and remove the paper.

Open the left cover relevant to the jam and remove the jammed paper.

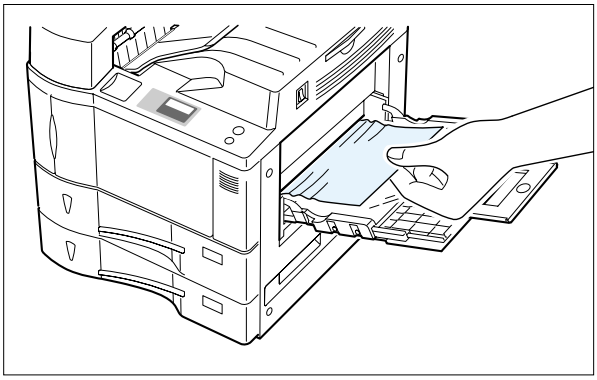


5.3.5 Paper jam on the multi purpose feeder pass (Jam in MPF TR)

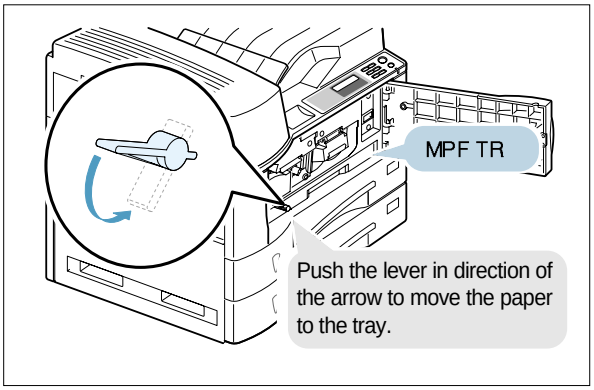
The Jam in MPF TR will be displayed when the jam has occurred on the multi purpose feeder pass.

Remove the jammed paper in order, as shown below.

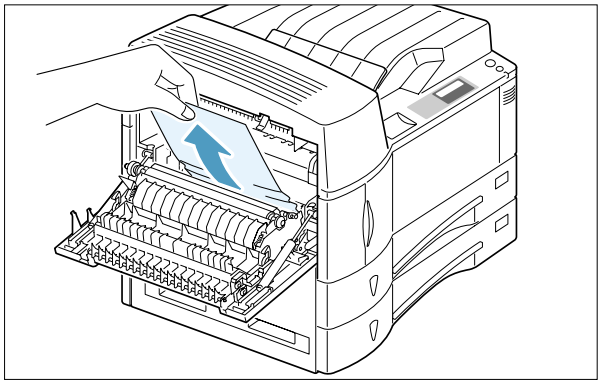
1. Remove the paper slowly if you can see the jammed paper from the MPF tray. If not, go to the step 2.



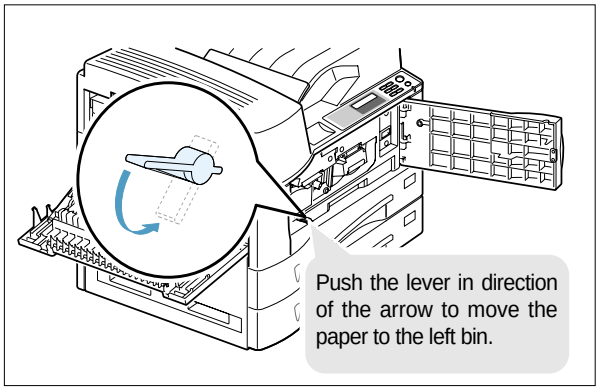
- If you cannot see the jammed paper well or it is hard to be removed, open the developing unit cover, and then continue to push the distributing lever to make the paper enter the MPF tray. Go to the step 3.



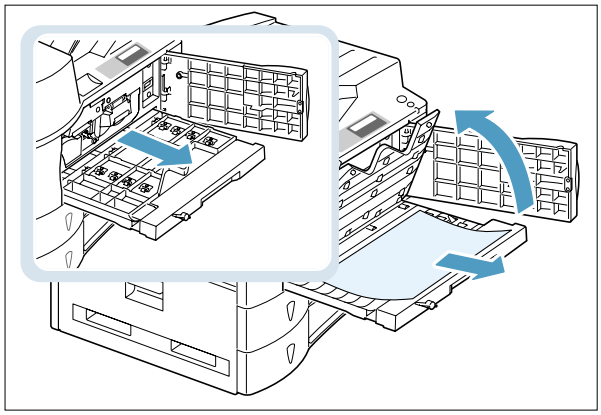
2. Open the left cover if you cannot see the jammed paper, and remove the paper. If you cannot see the jammed paper, go to the step 3.



- If you cannot see the jammed paper well or it is hard to be removed, open the developing unit cover and then keep pushing the distributing lever to move the paper out.



3. If you cannot see the paper, open the developing unit cover, take out the MPF tray, open the cover, and then remove the jammed paper.

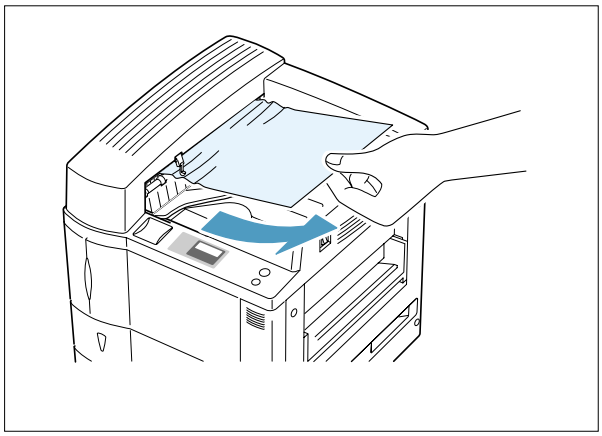


4. If the jammed papers are removed, close all covers. After a short while, printing will restart.

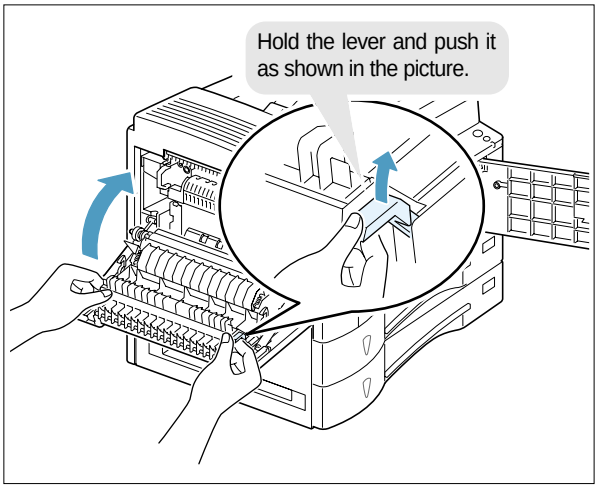
5.3.6 Paper jam on the Duplex (Jam Duplex)

The jam duplex x will be displayed when the jam has occurred on the duplex unit.
The x indicates the jam place. Remove the jammed paper in order, as shown below.

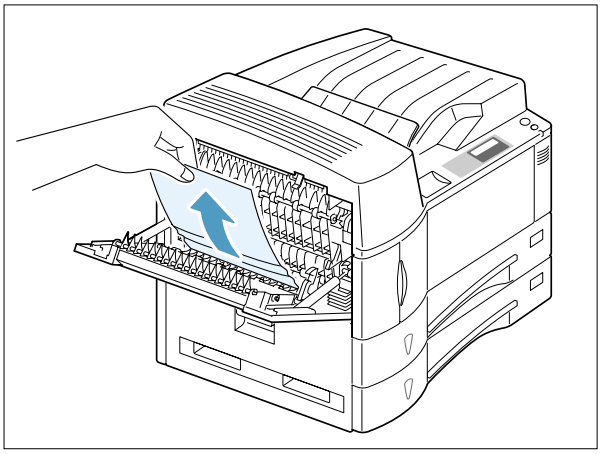
1. Remove the jammed paper slowly if you can see it.
   If not, go on to the step 2.



2. Open the duplex cover and disassemble the duplex.



3. Remove the jammed paper slowly and attach the duplex unit.



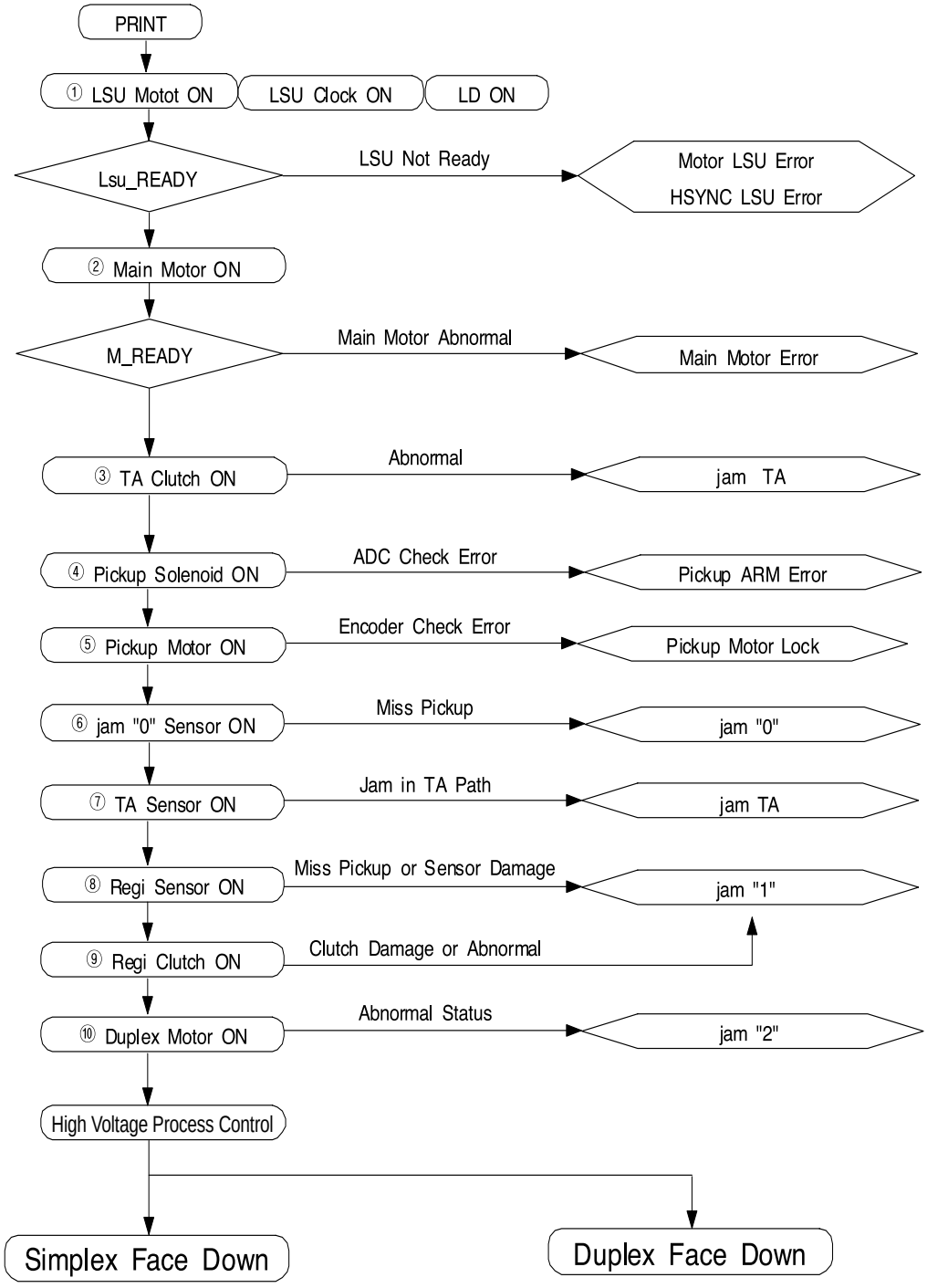
4. If the jammed papers are removed, close the cover.
   After a short while, printing will restart.

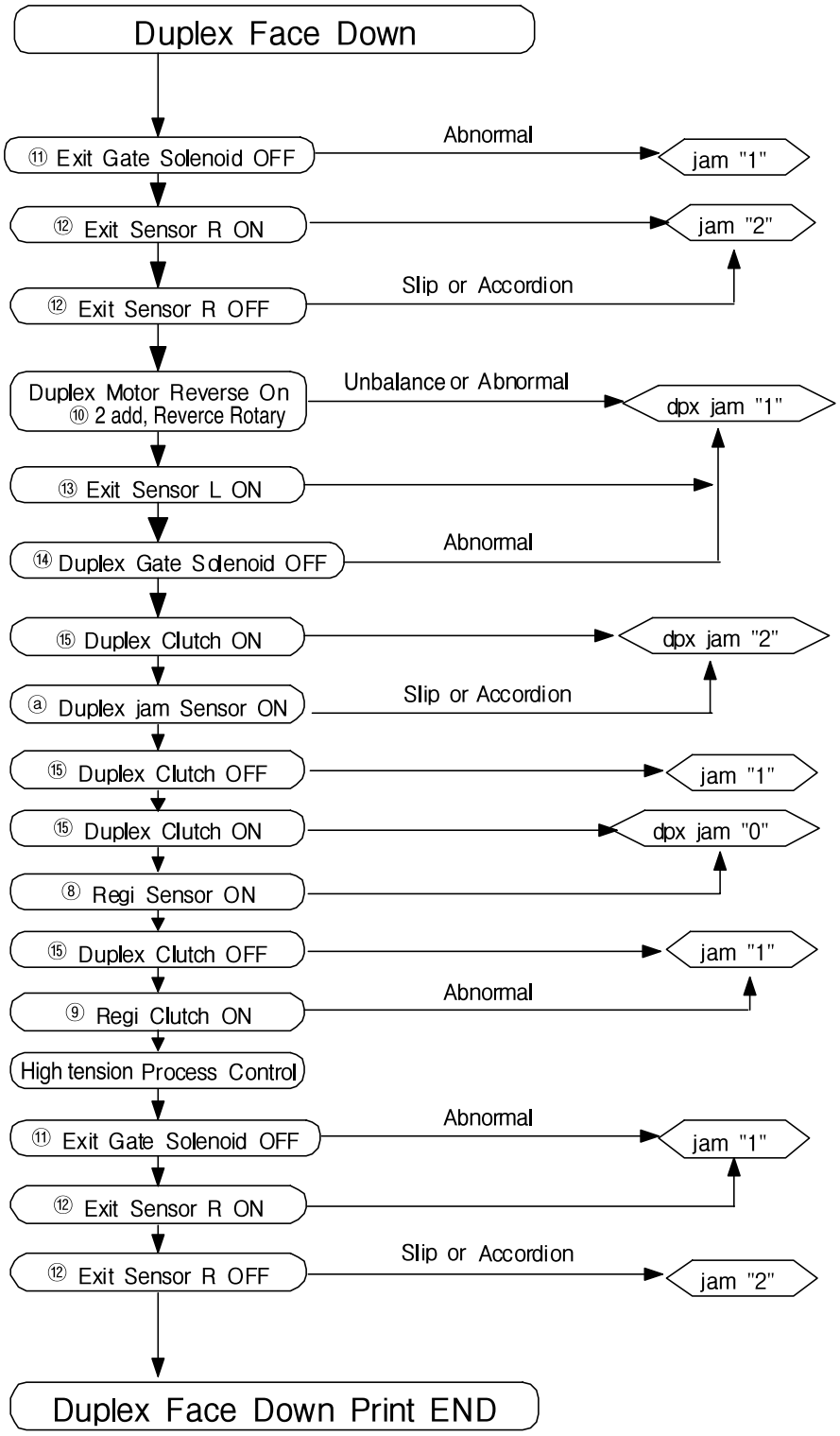
6. Troubleshooting

	ERROR MESSAGE	PAGE
Number	6.1.1 2ND LEFT COVER OPEN	page(6-6)
D	6.1.2 DEVELOPER NOT INSTALLED	page(6-6)
	6.1.3 DUPLEX COVER OPEN	page(6-7)
E	6.1.4 ENGINE FUSER OPEN ERROR	page(6-7)
	6.1.5 ENGINE FUSER LOW HEAT ERROR	page(6-8)
	6.1.6 ENGINE FUSER OVER HEAT ERROR	page(6-8)
	6.1.7 ENGINE INTERFACE ERROR	page(6-9)
F	6.1.8 FRONT COVER OPEN	page(6-9)
	6.1.9 FRONT FAN MOTOR LOCK ERROR	page(6-10)
H	6.1.10 HDD ERROR x	page(6-10)
	6.1.11 HDD FULL	page(6-10)
	6.1.12 HSYNC LSU ERROR	page(6-11)
I	6.1.13 INTERNAL ERROR	page(6-11)
	6.1.14 INVALID DEVELOPER	page(6-11)
	6.1.15 INVALID ROM DIMM IMAGE	page(6-12)
	6.1.16 INVALID TONER KIT	page(6-12)
	6.1.17 IP ADDRESS CONFLICT	page(6-13)
J	6.1.18 JAM 0 IN MPF	page(6-13)
	6.1.19 JAM 0 IN TRAY1	page(6-14)
	6.1.20 JAM 0 IN TRAY2	page(6-14)
	6.1.21 JAM 0 IN TRAY3	page(6-15)
	6.1.22 JAM 0 IN TRAY4	page(6-15)
	6.1.23 JAM DUPLEX 0	page(6-16)
	6.1.24 JAM DUPLEX 1	page(6-16)
	6.1.25 JAM DUPLEX2	page(6-17)
	6.1.26 JAM IN MPF TR	page(6-17)
	6.1.27 JAM TA IN TRAY1	page(6-18)
	6.1.28 JAM TA IN TRAY2	page(6-19)
	6.1.29 JAM TA IN TRAY3	page(6-20)
	6.1.30 JAM TA IN TRAY4	page(6-21)
	6.1.31 JAM1	page(6-22)
L	6.1.32 LEFT SIDE COVER OPEN	page(6-23)
	6.1.33 LOAD [PAPER TYPE] [PAPER] IN [TRAY]	page(6-23)
	6.1.34 LOAD MANUAL PRESS CONTINUE	page(6-24)
M	6.1.35 MAIN FAN MOTOR LOCK ERROR	page(6-24)
	6.1.36 MAIN MOTOR LOCK ERROR	page(6-25)
	6.1.37 MEMORY OVER FLOW	page(6-25)
	6.1.38 MOTOR LSU ERROR	page(6-26)
N	6.1.39 NVRAM CHECK FAIL	page(6-26)
P	6.1.40 PAGE TOO COMPLEX	page(6-26)

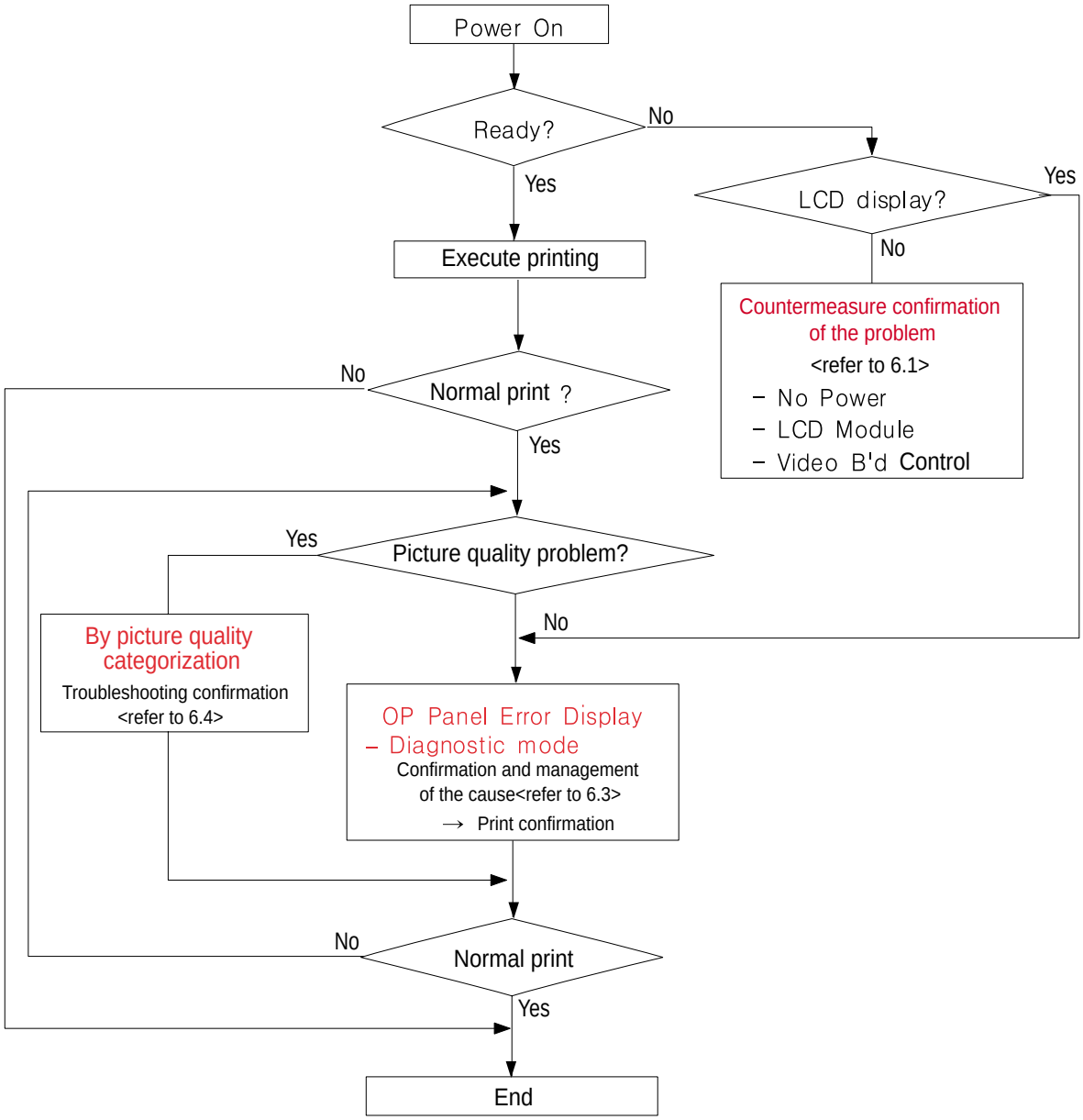
	ERROR MESSAGE	PAGE
P	6.1.41 PICKUP 1 MOTOR LOCK ERROR	page(6-27)
	6.1.42 PICKUP 2 MOTOR LOCK ERROR	page(6-27)
	6.1.43 PICKUP 3 MOTOR LOCK ERROR	page(6-28)
	6.1.44 PICKUP 4 MOTOR LOCK ERROR	page(6-28)
	6.1.45 POWER FAN MOTOR LOCK ERROR	page(6-29)
R	6.1.46 READY HDD ERROR	page(6-29)
	6.1.47 READY HDD FULL	page(6-29)
	6.1.48 READY HDD NOT ENOUGH	page(6-30)
	6.1.49 READY NO FILE SYSTEM	page(6-30)
	6.1.50 READY REPLACE DEV. KIT	page(6-30)
	6.1.51 READY REPLACE FUSER	page(6-30)
	6.1.52 READY REPLACE ROLLER 1	page(6-31)
	6.1.53 READY REPLACE ROLLER 2	page(6-31)
	6.1.54 READY REPLACE ROLLER 3	page(6-31)
	6.1.55 READY REPLACE ROLLER 4	page(6-31)
	6.1.56 READY REPLACE ROLLER M	page(6-32)
	6.1.57 READY REPLACE TONER KIT	page(6-32)
	6.1.58 READY REPLACE TRANSFER	page(6-32)
	6.1.59 READY [TRAY x] EMPTY	page(6-32)
	6.1.60 REPLACE DEV. KIT	page(6-33)
	6.1.61 REPLACE TONER KIT	page(6-33)
S	6.1.62 SLEEPING	page(6-33)
T	6.1.63 TONER EMPTY	page(6-33)
	6.1.64 TONER KIT NOT INSTALLED	page(6-34)
	6.1.65 TONER LOW STOP PRESS CONT KEY	page(6-34)
	6.1.66 TONER MOTOR LOCK ERROR	page(6-34)
	6.1.67 TONER SUPPLY LACK	page(6-35)
	6.1.68 TOP BIN FULL	page(6-35)
	6.1.69 TOP FAN MOTOR LOCK ERROR	page(6-36)
	6.1.70 TRANSFER UNIT NOT INSTALLED	page(6-36)
	6.1.71 TRAY 1 PICKUP ARM ERROR	page(6-37)
	6.1.72 TRAY 2 PICKUP ARM ERROR	page(6-37)
	6.1.73 TRAY 3 PICKUP ARM ERROR	page(6-38)
	6.1.74 TRAY 4 PICKUP ARM ERROR	page(6-38)
	6.1.75 [TRAY x][PAPER SIZE] EMPTY	page(6-39)
	6.1.76 [TRAY x] NOT INSTALLED	page(6-39)
	6.1.77 [TRAY x] OPEN	page(6-40)
W	6.1.78 WAIT IMAGE	page(6-40)
	6.1.79 WRONG PAPER SIZE [PAPER] IN [TRAY x]	page(6-40)

• ML-3550N Paper Path Cycle Diagram •

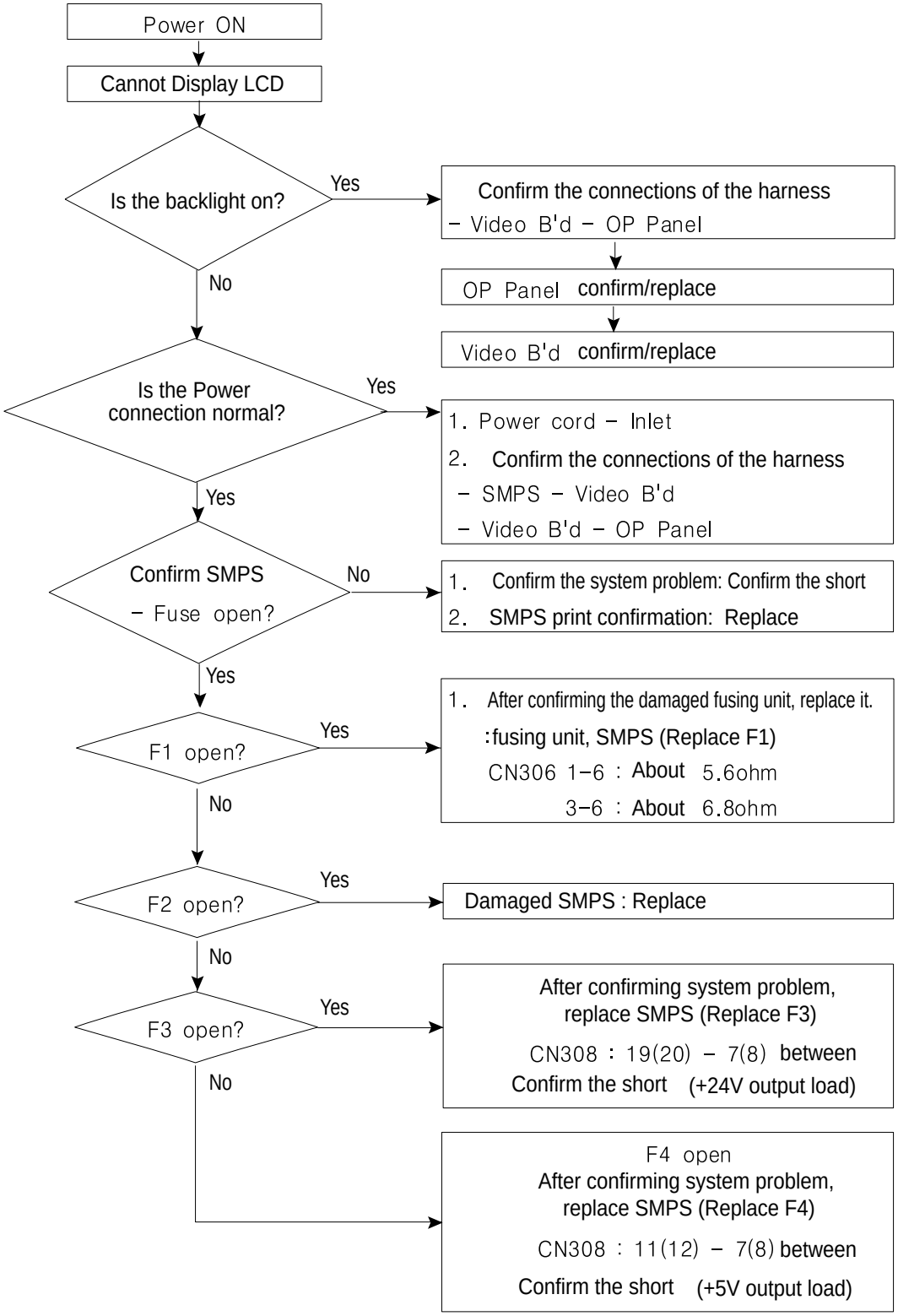



Duplex Face Down
⑪ Exit Gate Solenoid OFF
Abnormal
jam "1"
⑫ Exit Sensor R ON
jam "2"
⑫ Exit Sensor R OFF
Slip or Accordion
Duplex Motor Reverse On
⑩ 2 add, Reverce Rotary
Unbalance or Abnormal
dpx jam "1"
⑬ Exit Sensor L ON
⑭ Duplex Gate Solenoid OFF
Abnormal
⑮ Duplex Clutch ON
dpx jam "2"
ⓐ Duplex jam Sensor ON
Slip or Accordion
⑮ Duplex Clutch OFF
jam "1"
⑮ Duplex Clutch ON
dpx jam "0"
⑧ Regi Sensor ON
⑮ Duplex Clutch OFF
jam "1"
⑨ Regi Clutch ON
Abnormal
High tension Process Control
⑪ Exit Gate Solenoid OFF
Abnormal
jam "1"
⑫ Exit Sensor R ON
⑫ Exit Sensor R OFF
Slip or Accordion
jam "2"
Duplex Face Down Print END

• Break-down diagnosis method •



• Troubleshooting for LCD display failure •



6.1.1 2nd Left Cover Open

Lamp status	Orange light on
Message	SCF's left cover is open.

Troubleshooting

1) Check the SCF cable connection.
(If the cable is out, insert it to the connector.)

2) Check the harness connected between the Engine controller and the SCF Engine joint board.
(If the harness is out, insert it to the connector.)

3) Check the harness connected between the SCF controller and the left side over sensor.
(If the harness is out, insert it to the connector.)

4) In the Engine diagnostic mode operate the SCF cover open sensor to see if the sensor is operating.
(If it doesn't operate, replace the SCF cover open sensor.)

5) Confirm any damage or warping to the sensor actuator.
(If there are any warping or damage, replace the left cover.)

6) Replace the SCF controller.

6.1.2 DEVELOPER NOT INSTALLED

Lamp status	Orange light on
Message	The Drum Cartridge has not been mounted.

Troubleshooting

1) Check the harness connected between the Engine controller and the drum cartridge.
(If the harness is out, insert it to the connector.)

2) In the Engine diagnostic mode, take out the drum cartridge and check for proper operation.
(If it doesn't operate, replace the drum cartridge.)

3) After inserting the drum cartridge, check if the Engine controller CN 13's No. 1 voltage is outputting 5V.
(If it is not outputting proper voltage, replace the Engine controller.)

4) Check the existence of the D 12 Open/Short of the Engine controller.
(Replace the Engine controller when it is Open/Short.)

6.1.3 DUPLEX COVER OPEN

Lamp status	Orange light on
Message	The duplex cover is open.

Troubleshooting

1) Check the harness connection between the SMPS board and the duplex cover sensor.
(If the harness is out, insert it to the connector.)

2) In the Engine diagnostic mode, operate the duplex cover open sensor to see if the sensor is operating.
(If it is not operating, replace the duplex cover open sensor.)

3) Check if the duplex cover open sensor is showing on/off from the normal operation of the duplex lever swing.
(If it is not operating normally, replace the duplex lever swing.)

4) After closing the duplex cover, check to see if the CN307 of the SMPS board is outputting 24V.
(If it is not showing appropriate voltage, replace the SMPS.)

6.1.4 ENGINE FUSER OPEN ERROR

Lamp status	Orange light on
Message	When the fusing unit harness is not connecting or thermistor, thermostat is not operating normally.

Troubleshooting

1) Check for proper mounting of the fusing unit.
(If it is not properly mounted, remount it.)

2) Check for the harness between the SMPS and the fusing unit.
(If the harness is out, insert it to the connector.)

3) Check for the harness between the paper size board and the thermistor.
(If the harness is out, insert it to the connector.)

4) Check for the harness between the paper size board and the Engine controller.
(If the harness is out, insert it to the connector.)

5) Check to see if the thermistor of the fusing unit is normal.
(If it is not normal, replace the fusing unit.)

6) Check to see if the thermostat of the fusing unit is normal.
(If it is not normal, replace the fusing unit.)

7) Check to see if the lamp of the fusing unit is normal.
(If it is not normal, replace the fusing unit.)
* Main Lamp (1-6 terminal): About 5.6
* SUB Lamp (3-6 terminal): About 6.8

8) Replace the Engine controller

9) Replace the SMPS.

6.1.5 ENGINE FUSER LOW HEAT ERROR

Lamp status	Orange light on
Message	The fusing unit temperature is lower than the printing temperature.

Troubleshooting

1) Check if the fusing unit is mounted properly.
   (If it is not properly mounted, remount it.)
2) Check for the harness between the SMPS and the fusing unit.
   (If the harness is out, insert it to the connector.)
3) Check for the harness between the paper size board and the thermistor.
   (If the harness is out, insert it to the connector.)
4) Check for the harness between the paper size board and the Engine controller.
   (If the harness is out, insert it to the connector.)
5) Check to see if the thermistor of the fusing unit is normal.
   (If it is not normal, replace the fusing unit.)
6) Check to see if the thermostat of the fusing unit is normal.
   (If it is not normal, replace the fusing unit.)
7) Check to see if the lamp of the fusing unit is normal.
   (If it is not normal, replace the fusing unit.)
   * Main Lamp (1-6 terminal): About 5.6
   * SUB Lamp (3-6 terminal): About 6.8
8) Replace the Engine controller
9) Replace the SMPS.

6.1.6 ENGINE FUSER OVER HEAT ERROR

Lamp status	Orange light on
Message	The fusing unit temperature is higher than the printing temperature.

Troubleshooting

1) Check if the fusing unit is mounted properly.
   (If it is not properly mounted, remount it.)
2) Check for the harness between the SMPS and the fusing unit.
   (If the harness is out, insert it to the connector.)
3) Check for the harness between the paper size board and the thermistor.
   (If the harness is out, insert it to the connector.)
4) Check for the harness between the paper size board and the Engine controller.
   (If the harness is out, insert it to the connector.)
5) Check to see if the thermistor of the fusing unit is normal.
   (If it is not normal, replace the fusing unit.)
6) Check to see if the thermostat of the fusing unit is normal.
   (If it is not normal, replace the fusing unit.)
7) Check to see if the lamp of the fusing unit is normal.
   (If it is not normal, replace the fusing unit.)
   * Main Lamp (1-6 terminal): About 5.6
   * SUB Lamp (3-6 terminal): About 6.8
8) Replace the Engine controller
9) Replace the SMPS.

6.1.7 ENGINE INTERFACE ERROR

Lamp status	Orange light on
Message	The communication error between the Engine controller and the Video controller.

Troubleshooting

1) Check for the harness connected between the SMPS (CN308) and the Engine controller CN2 sensor.
(If the harness is out, insert it to the connector.)

2) Check for the harness connected between the Engine controller (CN5) and the Video controller (CN1)
(If the harness is out, insert it to the connector.)

3) Check if the LED in the Engine controller is flashing.
(If it doesn't flash, replace the Engine controller.)

4) Replace the Video controller.

6.1.8 FRONT COVER OPEN

Lamp status	Orange light on
Message	The front cover is open.

Troubleshooting

1) Check for the harness connected between the Engine cover sensor and the front cover sensor.
(If the harness is out, insert it to the connector.)

2) In the Engine diagnostic mode, operate the front cover sensor to see if the sensor is operating.
(If it doesn't operate, replace the sensor.)

3) Check for any damages or warping to the lever.
(If it is warped or damaged, replace the front cover.)

4) In the Engine diagnostic mode, operate the front cover sensor to see if No. 1 voltage of the (Close/open) Engine controller CN8 is changing from 5V to 0V.
(If proper voltage is not being outputted, replace the Engine controller.

6.1.9 FRONT FAN MOTOR LOCK ERROR

Lamp status	Orange light on
Message	Occurs when the front fan doesn't operate.

Troubleshooting

1) Check for the harness between the exit board and the Engine controller.
   (If the harness is out, insert it to the connector)
2) Check for the harness between the exit board and the front fan.
   (If the harness is out, insert it to the connector.)
3) Operate the Engine diagnostic mode, operate the front fan to see if the fan is operating.
   (If it does not operate, replace the front fan)
4) Check to see if the SMPS F3 fuse is disconnected
   (In the case of disconnection, replace SMPS and check to see if there is a short in the 24V terminal)
5) Replace the exit board.
6) Replace the Engine controller

6.1.10 HDD ERROR x

Lamp status	Orange light on
Message	An error has occurred in the HDD. It will be displayed from HDD ERROR 0X01 to 0X40.

Troubleshooting

Format the HDD.
(Select the HDD FUNCTIONS INITIALIZE HDD from the service menu)

6.1.11 HDD FULL

Lamp status	Orange light on
Message	The HDD has exceeded its capacity.

Troubleshooting

Delete the stored data in the HDD.

6.1.12 HSYNC LSU ERROR

Lamp status	Orange light on
Message	The HSYNC is not occurred.

Troubleshooting

1) Check the harness connected between the Engine controller and the LSU.
   (If the harness is out, insert it to the connector.)
2) In the Engine diagnostic mode, operate the LSU motor test to see if the HSYNC is created.
   (If the HSYNC hasn't been created, replace the LSU.)
3) Check the CN3 of the Engine controller whether it is 1.1V.
   (If it is not, replace the Engine controller.)
4) Replace the LSU.

6.1.13 INTERNAL ERROR

Lamp status	Orange light on
Message	A problem due to receiving data.

Troubleshooting

1) Turn the power off, and then on.
2) Try reprinting.
3) Inform the PC environment and the delinquent data to the [CS group appropriate Quality Control officer]

6.1.14 INVALID DEVELOPER

Lamp status	Orange light on
Message	A communication is not made with the developer.

Troubleshooting

1) Check the harness connected to the Engine controller and the DEVE ID board.
   (If the harness is out, insert it to the connector.)
2) Check the drum cartridge whether it is an authentic product.
   (If it is not an authentic product, replace it)
3) Check the existence of the open/short of the D15 of the Engine controller.
   (Replace the Engine controller when it is open/short.)

6.1.15 INVALID ROM DIMM IMAGE

Lamp status	Orange light on
Message	A wrong image has been downloaded to the ROM DIMM or there is an error.

Troubleshooting

1) Down load the ROM image again.

2) Replace the ROM DIMM.

3) Replace the Video controller.

6.1.16 INVALID TONER KIT

Lamp status	Orange light on
Message	The toner kit is invalided.

Troubleshooting

1) Check the harness connected between the Engine controller and the toner ID.
(If the harness is out, insert it to the connector.)

2) Check the toner cartridge whether it is an authentic product.
(If not, replace it.)

3) Check the existence of the Open/short of the D11 of the Engine controller.
(Replace the Engine controller when it is open/short.)

6.1.17 IP ADDRESS CONFLICT

Lamp status	Orange light on
Message	There is a conflict in the IP address of the network.

Troubleshooting

1) Reset the IP address.
2) Check the IP Address.

6.1.18 JAM 0 IN MPF

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the MPF tray and MPF Jam 0 sensor. Remove the Jammed paper from the MPF.

Troubleshooting

1) Check the harness connected between the Engine controller and the paper size board.
   (If the harness is out, insert it to the connector.)
2) Check the harness connected between the paper size board and MPF motor.
   (If the harness is out, insert it to the connector.)
3) Operate the MPF motor in the Engine diagnostic mode to see if the motor is operating.
   (If it is not operating, replace the motor.)
4) Operate the MPF clutch in the Engine diagnostic mode to see if the clutch is operating.
   (If it is not operating, replace the clutch.)
5) Operate the MPF Jam sensor 1 in the Engine diagnostic mode to see if the sensor is operating.
   (If it is not operating, replace the paper size board.)
6) Replace the Engine controller.

6.1.19 JAM 0 IN TRAY1

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the try 1 and the Jam 0 sensor. Open the left cover to remove the Jammed paper.

Troubleshooting

1) Check the connection between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)
2) Check the harness between the TA board and the Pickup unit.
(If the harness is out, insert it to the connector.)
3) Check the harness connected between the Engine controller and T1_Jam 0 sensor.
(If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the T1 Jam 0 sensor to check if the sensor is operating.
(If it is not operating, replace the T1_Jam 0 sensor.
5) Check the damage or warping of the T1 Jam 0sensor actuator.
(Replace the T1 Jam 0 sensor if it is damaged or warped.)
6) In the Engine diagnostic mode, operate the T1 Pickup motor to check if the motor is operating.
(If it is not operating, replace the T1 Pickup motor.)
7) In the Engine diagnostic mode, operate the T1 SOL to check if the solenoid is operating.
(If it is not operating, replace the Pickup unit.)
8) Replace the Engine controller.

6.1.20 JAM 0 IN TRAY2

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the try 2 and the JAM 0 sensor. Open the left cover to remove the Jammed paper.

Troubleshooting

1) Check the connection between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)
2) Check the harness between the TA board and the Pickup unit.
(If the harness is out, insert it to the connector.)
3) Check the harness connected between the Engine controller and T2_Jam 0 sensor.
(If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the T2 Jam 0 sensor to check if the sensor is operating.
(If it is not operating, replace the T2_Jam 0 sensor.
5) Check the damage or warping of the T2 Jam 0sensor actuator.
(Replace the T2 Jam 0 sensor if it is damaged or warped.)
6) In the Engine diagnostic mode, operate the T2 Pickup motor to check if the motor is operating.
(If it is not operating, replace the T2 Pickup motor.)
7) In the Engine diagnostic mode, operate the T2 SOL to check if the solenoid is operating.
(If it is not operating, replace the Pickup unit.)
8) Replace the Engine controller.

6.1.21 JAM 0 IN TRAY3

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the try 3 and JAM 0 sensor. Open the left cover to remove the Jammed paper.

Troubleshooting

1) Check the connection status of the SCF cable harness.
(If the cable is out, insert it to the connector.)

2) Check the harness between the SCF controller and the Pickup unit.
(If the harness is out, insert it to the connector.)

3) Check the harness connected between the Engine controller and T3_Jam 0 sensor. (Reflect Type)
(If the harness is out, insert it to the connector.)

4) In the Engine diagnostic mode, operate the T3 Jam 0 sensor to check if the sensor is operating.
(If it is not operating, replace the T3_Jam 0 sensor.

5) In the Engine diagnostic mode, operate the T3 Pickup motor to check if the motor is operating.
(If it is not operating, replace the T3 Pickup motor.)

6) In the Engine diagnostic mode, operate the T3 SOL to check if the solenoid is operating.
(If it is not operating, replace the Pickup unit.)

7) Replace the SCF controller.

6.1.22 JAM 0 IN TRAY4

Lamp status	Orange light on
Message	The occurrence of the paper Jam between try 4 and JAM 0 sensor. Open the left cover to remove the Jammed paper.

Troubleshooting

1) Check the connection status of the SCF cable harness.
(If the cable is out, insert it to the connector.)

2) Check the harness between the SCF controller and the Pickup unit.
(If the harness is out, insert it to the connector.)

3) Check the harness connected between the Engine controller and T4_Jam 0 sensor.
(If the harness is out, insert it to the connector.)

4) In the Engine diagnostic mode, operate the T4 Jam 0 sensor to check if the sensor is operating.
(If it is not operating, replace the T4_Jam 0 sensor.

5) Check the damage or warping of the T4 Jam 0 sensor actuator.
(Replace the T4 Jam 0 sensor if it is damaged or warped.)

6) In the Engine diagnostic mode, operate the T4 Pickup motor to check if the motor is operating.
(If it is not operating, replace the T4 Pickup motor.)

7) In the Engine diagnostic mode, operate the T4 SOL to check if the solenoid is operating.
(If it is not operating, replace the Pickup unit.)

8) Replace the SCF controller.

6.1.23 JAM DUPLEX 0

Lamp status	Orange light on
Message	The occurrence of the paper Jam on the duplex unit. Open the duplex cover to remove the Jammed paper.

Troubleshooting

1) Check the harness connected between the Engine controller and the REGI sensor.
(If the harness is out, insert it to the connector.)
2) Check the harness connected between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)
3) Check the harness connected between the TA board and the duplex clutch.
(If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the duplex clutch to check if the clutch is operating.
(If it is not operating, replace the duplex clutch.)
5) In the Engine diagnostic mode, operate the REGI sensor to check if the clutch if operating.
(Replace the REGI sensor if it is not operating.)
6) Replace the Ta board.
7) Replace the Engine controller.

6.1.24 JAM DUPLEX 1

Lamp status	Orange light on
Message	The occurrence of the paper Jam on the exit unit. Remove the Jammed paper from the exit unit.

Troubleshooting

1) Check the harness connected between the Engine controller and the exit board.
(If the harness is out, insert it to the connector.)
2) Check the harness connected between the Engine controller and the paper size board.
(If the harness is out, insert it to the connector.)
3) Check the harness connected between the paper size board and the exit motor.
(If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the DPX MOT BW 2 to check if the motor is operating.
(If it is not operating, replace the duplex motor.)
5) In the Engine diagnostic mode, operate the exit-L sensor to check if the sensor is operating.
(If it is not operating, replace the exit board.)
6) Check the damage or warping of the sensor actuator.
(If it is damaged or warped, replace the exit sensor FD.)
7) Replace the paper size board.
8) Replace the Engine controller.

6.1.25 JAM DUPLEX2

Lamp status	Orange light on
Message	The occurrence of the paper Jam on the duplex unit. Open the duplex cover to remove the Jammed paper.

Troubleshooting

1) Check the harness connected between the Engine controller and the exit board.
(If the harness is out, insert it to the connector.)

2) Check the harness connected between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)

3) In the Engine diagnostic mode, operate the duplex clutch to check if the clutch is operating.
(If it is not operating, replace the duplex clutch.)

4) In the Engine diagnostic mode, operate the duplex sensor to check if the sensor is operating.
(If it is not operating, replace the TA board.)

5) Check the damage or warping of the sensor actuator.
(If it is the damaged or warped, replace the exit sensor FU or the exit sensor FD)

6) Replace the TA board.

7) Replace the Engine controller

6.1.26 JAM IN MPF TR

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the MPF Jam 0 sensor OR and the MPF Jam 1 sensor. Open the duplex cover, turn the MPF transfer lever then pull the transfer to remove the Jammed paper.

Troubleshooting

1) Check the harness connected between the Engine controller and the paper size board.
(If the harness is out, insert it to the connector.)

2) Check the harness connected between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)

3) In the Engine diagnostic mode, operate the MPF Jam sensor 1 to check if the sensor is operating.
(If it is not operating, replace the paper size board.)

4) In the Engine diagnostic mode, operate the MPF Jam sensor 2 to check if the sensor is operating.
(If it is not operating, replace the TA board.)

5) Check the damage or warping of the sensor actuator.
(If it is the damaged or warped, replace the MEC Jam sensor or the ARM3 Jam sensor.)

6) Check the damage or warping of ARM2 Jam sensor of the transfer unit.
(If it is the damaged or warped, replace the ARM2 Jam sensor.

7) Replace the Engine controller

6.1.27 JAM TA IN TRAY1

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the tray 1 Jam 0 sensor and the REGI sensor. Open the left cover and remove the Jammed paper.

Troubleshooting

1) Check the harness connected between the Engine controller and the T1 Jam 0 sensor.
   (If the harness is out, insert it to the connector.)
2) Check the harness between the REGI sensor and the Engine controller.
   (If the harness is out, insert it to the connector.)
3) Check the harness connected between the Engine controller and TA board.
   (If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the T1 Jam 0 sensor to check if the sensor is operating.
   (If it is not operating, replace the T1_Jam 0 sensor.
5) In the Engine diagnostic mode, operate the REGI sensor to check if the sensor is operating.
   (If it is not operating, replace the REGI sensor.)
6) In the Engine diagnostic mode, operate the TA_1 sensor to check if the sensor is operating.
   (If it is not operating, replace the TA board.)
7) In the Engine diagnostic mode, operate the TA clutch to check if the clutch is operating.
   (If it is not operating, replace the TA clutch.)
8) Check the damage or warping of the T 1Jam 0 sensor actuator.
   (If it is damaged or warped, replace the ARM1 Jam sensor or ARM2 Jam sensor.)
9) Replace the Engine controller.

6.1.28 JAM TA IN TRAY2

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the tray 2 Jam 0 sensor and the REGI sensor. Open the left cover and remove the Jammed paper.

Troubleshooting

1) Check the harness connected between the Engine controller and the T2 Jam 0 sensor.
   (If the harness is out, insert it to the connector.)
2) Check the harness between the REGI sensor and the Engine controller.
   (If the harness is out, insert it to the connector.)
3) Check the harness connected between the Engine controller and TA board.
   (If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the T2 Jam 0 sensor to check if the sensor is operating.
   (If it is not operating, replace the T2_Jam 0 sensor.
5) In the Engine diagnostic mode, operate the REGI sensor to check if the sensor is operating.
   (If it is not operating, replace the REGI sensor.)
6) In the Engine diagnostic mode, operate the TA_2 sensor to check if the sensor is operating.
   (If it is not operating, replace the TA board.)
7) In the Engine diagnostic mode, operate the TA clutch to check if the clutch is operating.
   (If it is not operating, replace the TA clutch.)
8) Check the damage or warping of the T2 Jam 0 sensor actuator.
   (If it is damaged or warped, replace the ARM1 Jam sensor or ARM2 Jam sensor.)
9) Replace the Engine controller.

6.1.29 JAM TA IN TRAY3

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the tray 3 Jam 0 sensor and the REGI sensor. Open the SCF left cover and remove the Jammed paper.

Troubleshooting

1) Check the connecting of the SCF cable.
   (If the cable is out, insert it to the connector.)
2) Check the harness between the REGI sensor and the Engine controller.
   (If the harness is out, insert it to the connector.)
3) Check the harness connected between the SCF controller and T3 Jam 0 sensor.
   (If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the T3 Jam 0 sensor to check if the sensor is operating.
   (If it is not operating, replace the T3 Jam 0 sensor.
5) In the Engine diagnostic mode, operate the REGI sensor to check if the sensor is operating.
   (If it is not operating, replace the REGI sensor.)
6) In the Engine diagnostic mode, operate the TA_3 sensor to check if the sensor is operating.
   (If it is not operating, replace the TA_3 board.)
7) In the Engine diagnostic mode, operate the TA clutch to check if the clutch is operating.
   (If it is not operating, replace the TA clutch.)
8) Check the damage or warping of the T3 Jam 0 sensor actuator.
   (If it is damaged or warped, replace the ARM1 Jam sensor or ARM2 Jam sensor.)
9) Replace the SCF controller.
10) Replace the Engine controller.

6.1.30 JAM TA IN TRAY4

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the tray 4 am 0 sensor and the REGI sensor. Open the SCF left cover and remove the Jammed paper.

Troubleshooting

1) Check the connecting of the SCF cable.
   (If the cable is out, insert it to the connector.)
2) Check the harness between the REGI sensor and the Engine controller.
   (If the harness is out, insert it to the connector.)
3) Check the harness connected between the SCF controller and T4 Jam 0 sensor.
   (If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the T4 Jam 0 sensor to check if the sensor is operating.
   (If it is not operating, replace the T4 Jam 0 sensor.
5) In the Engine diagnostic mode, operate the REGI sensor to check if the sensor is operating.
   (If it is not operating, replace the REGI sensor.)
6) In the Engine diagnostic mode, operate the TA_4 sensor to check if the sensor is operating.
   (If it is not operating, replace the TA_4 board.)
7) In the Engine diagnostic mode, operate the TA clutch to check if the clutch is operating.
   (If it is not operating, replace the TA clutch.)
8) Check the damage or warping of the T4 Jam 0 sensor actuator.
   (If it is damaged or warped, replace the ARM1 Jam sensor or ARM2 Jam sensor.)
9) Replace the SCF controller.
10) Replace the Engine controller.

6.1.31 JAM1

Lamp status	Orange light on
Message	The occurrence of the paper Jam between the exit sensor and the REGI sensor. Open the duplex cover and remove the Jammed paper.

Troubleshooting

1) Check the harness connected between the Engine controller and the REGI sensor.
   (If the harness is out, insert it to the connector.)
2) Check the harness between the exit board and the Engine controller.
   (If the harness is out, insert it to the connector.)
3) In the Engine diagnostic mode, operate the exit_R sensor to check if the sensor is operating.
   (The top bin: If it is not operating, replace the exit board.)
4) In the Engine diagnostic mode, operate the exit_L sensor to check if the sensor is operating.
   (The left bin: If it is not operating, replace the exit board.)
5) In the Engine diagnostic mode, operate the REGI sensor to check if the sensor is operating.
   (If it is not operating, replace the REGI sensor.)
6) Check the damage or warping of the sensor actuator.
   (If it is damaged or warped, replace the exit sensor FD.)
7) In the Engine diagnostic mode, operate the TA clutch to check if the clutch is operating.
   (If it is not operating, replace the TA clutch.)
8) In the Engine diagnostic mode, check whether the REGI-clutch is operating.
   (If it is not operating, replace the REGI clutch.)
9) Replace the Engine controller.

6.1.32 LEFT SIDE COVER OPEN

Lamp status	Orange light on
Message	The left side cover is open.

Troubleshooting

1) Check the harness connected between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)

2) Check the harness connected between the TA board and the left side cover sensor.
(If the harness is out, insert it to the connector.)

3) In the Engine diagnostic mode, operate the left side cover open sensor to check if the sensor is operating.
(If it is not operating, replace the TA board.)

4) Check the damage or warping of the sensor actuator.
(If it is damaged or warped, replace the ARM1 Jam sensor.)

5) Replace the Engine controller.

6.1.33 LOAD [PAPER TYPE] [PAPER] IN [TRAY]

Lamp status	Orange light on
Message	The size of the original document and the fed papers does not match or the paper type is different.

Troubleshooting

The printing process starts when the paper is fed.

If using the fed paper, press the [Online/Continue] button.

1) Check the harness connected between the Engine controller and the paper size board.
(If the harness is out, insert it to the connector.)

2) Check the damage or warping of the cassette.
(If it is damaged or warped, replace the cassette.)

3) Replace the paper size board.

6.1.34 LOAD MANUAL PRESS CONTINUE

Lamp status	Orange light Flickering
Message	When selecting the manual feeding system.

Troubleshooting

Press the [Online/Continue] button to print a page.

Press the button for each time.

6.1.35 MAIN FAN MOTOR LOCK ERROR

Lamp status	Orange light Flickering
Message	An error has occurred at the main fan.

Troubleshooting

1) Check the harness connected between the Engine controller and the paper size board.
   (If the harness is out, insert it to connector.)
2) Check the harness connected between the paper size board and the main fan.
   (If the harness is out, insert it to connector.)
3) In the Engine diagnostic mode, operate the main fan to check if the fan is operating.
   (If it is not operating, replace the main fan.)
4) Replace the paper size board.
5) Replace the Engine controller.

6.1.36 MAIN MOTOR LOCK ERROR

Lamp status	Orange light on
Message	An error has occurred at the main motor.

Troubleshooting

1) Check the harness connected between the Engine controller and the main motor.
   (If the harness is out, insert it to the connector.)
2) In the Engine diagnostic mode, operate the main motor to check if the motor is operating.
   (If it is not operating, replace the main motor.)
3) Check the F3 fuse of the SMPS whether it is disconnected.
   (If it is disconnected, replace the SMPS and check the existence of the 5V/24V/ short)
4) Replace the Engine controller.

6.1.37 MEMORY OVER FLOW

Lamp status	Orange light on
Message	Due to lack of memory, the present page cannot be treated.

Troubleshooting

The present printing process is automatically canceled, and the printer becomes a standby state.

After receiving the data, the printing process starts.

6.1.38 MOTOR LSU ERROR

Lamp status	Orange light on
Message	The LSU motor is operating abnormally.

Troubleshooting

1) Check the harness connected between the Engine controller and the LSU.
(If the harness is out, insert it to the connector.)

2) In the Engine diagnostic mode, operate the LSU motor to check if the motor is operating.
(If the LSU motor is not operating, replace the LSU unit.)

3) Replace the Engine controller.

6.1.39 NVRAM CHECK FAIL

Lamp status	Orange light on
Message	The values between NVRAM and the checksum are different.

Troubleshooting

1) Replace the NVRAM

2) Replace the Video controller.

6.1.40 PAGE TOO COMPLEX

Lamp status	Orange light Flickering
Message	The pages are too complex to be treated.

Troubleshooting

When memory is downloaded and the printing is attempted once again, if it cannot be printed, this page will not be printed and the next page will be printed.

6.1.41 PICKUP 1 MOTOR LOCK ERROR

Lamp status	Orange light on
Message	The occurrence of the error at the motor of the fist Pickup unit.

Troubleshooting

1) Check the harness connected between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)

2) Check the harness connected between the TA board and the Pickup unit.
(If the harness is out, insert it to the connector.)

3) Check the harness connected between the Pickup unit and the Pickup motor.
(If the harness is out, insert it to the connector.)

4) In the Engine diagnostic mode, operate the T1 Pickup motor to check if the motor is operating.
(If it is not operating, replace the Pickup motor.)

5) Check the damage of the Pickup motor's encoder.
(If the encoder is damaged, replace the Pickup motor.)

6) Replace the TA board.

6.1.42 PICKUP 2 MOTOR LOCK ERROR

Lamp status	Orange light on
Message	The occurrence of an error at the motor of the second Pickup unit.

Troubleshooting

1) Check the harness connected between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)

2) Check the harness connected between the TA board and the Pickup unit.
(If the harness is out, insert it to the connector.)

3) Check the harness connected between the Pickup unit and the Pickup motor.
(If the harness is out, insert it to the connector.)

4) In the Engine diagnostic mode, operate the T2 Pickup motor to check if the motor is operating.
(If it is not operating, replace the Pickup motor.)

5) Check the damage of the Pickup motor's encoder.
(If the encoder is damaged, replace the Pickup motor.)

6) Replace the TA board.

6.1.43 PICKUP 3 MOTOR LOCK ERROR

Lamp status	Orange light on
Message	The occurrence of an error at the motor of the third Pickup unit.

Troubleshooting

1) Check the connecting status of the SCF cable.
   (If the cable is out, insert it to the connector.)
2) Check the harness connected between the SCF controller and the Pickup unit.
   (If the harness is out, insert it to the connector.)
3) Check the harness connected between the Pickup unit and the Pickup motor.
   (If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the T3 Pickup motor to check if the motor is operating.
   (If it is not operating, replace the Pickup motor.)
5) Check the damage of the Pickup motor's encoder.
   (If the encoder is damaged, replace the Pickup motor.)
6) Replace the SCF controller.

6.1.44 PICKUP 4 MOTOR LOCK ERROR

Lamp status	Orange light on
Message	The occurrence of an error at the motor of the fourth Pickup unit.

Troubleshooting

1) Check the connecting status of the SCF cable.
   (If the cable is out, insert it to the connector.)
2) Check the harness connected between the SCF controller and the Pickup unit.
   (If the harness is out, insert it to the connector.)
3) Check the harness connected between the Pickup unit and the Pickup motor.
   (If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the T4 Pickup motor to check if the motor is operating.
   (If it is not operating, replace the Pickup motor.)
5) Check the damage of the Pickup motor's encoder.
   (If the encoder is damaged, replace the Pickup motor.)
6) Replace the SCF controller.

6.1.45 POWER FAN MOTOR LOCK ERROR

Lamp status	Orange light on
Message	The occurrence of an error at the power fan.

Troubleshooting

1) Check the harness connected between the SMPS board and the power fan.
   (If the harness is out, insert it to the connector.)
2) Check the SMPS F3 to see whether it is normal.
   (If it is abnormal, replace the SMPS)
3) In the Engine diagnostic mode, operate the SMPS fan to check if the fan motor is operating.
   (If it is not operating, replace the SMPS fan.)

6.1.46 READY HDD ERROR

Lamp status	Green light on
Message	There is a problem when operating the optional HDD.

Troubleshooting

An error occurred during a job from the optional hard disk.

Reboot your printer.

If the message persists, contact a service representative.

6.1.47 READY HDD FULL

Lamp status	Green light on
Message	The HDD Has exceeded it capacity.

Troubleshooting

The memory of the optional hard disk is full.

Delete unnecessary files from the hard disk.

6.1.48 READY HDD NOT ENOUGH

Lamp status	Green light on
Message	The maximum capacity of the optional hard disk is 500 Mbytes.

Troubleshooting

When this message displays, you cannot use the Spool Print option.

Delete unnecessary files from the hard disk.

The maximum capacity of the optional hard disk is 500 Mbytes.

6.1.49 READY NO FILE SYSTEM

Lamp status	Green light on
Message	The HDD is mounted, but there is no file system or the file system error has occurred.

Troubleshooting

An error occurred in the file system of the optional hard disk.

Contact a service representative.

6.1.50 READY REPLACE DEV. KIT

Lamp status	Green light on
Message	DEV.KIT replace time.(Time presses)

Troubleshooting

The drum cartridge is nearly at the end of its life.Replace the cartridge.

6.1.51 READY REPLACE FUSER

Lamp status	Green light on
Message	The life of the fuser unit has expired.

Troubleshooting

The fuser unit is at the end of its life. Replace the fuser unit.
Contact a service representative.

6.1.52 READY REPLACE ROLLER 1

Lamp status	Green light on
Message	The life of the Pickup roller of Tray1 has expired.

Troubleshooting

The picking roler of Tray1 is at the end of its life. Replace the picking roller. Contact a service representative.

6.1.53 READY REPLACE ROLLER 2

Lamp status	Green light on
Message	The life of the Pickup roller of Tray2 has expired.

Troubleshooting

The picking roller of Tray2 is at the end of its life. Replace the picking roller. Contact a service representative.

6.1.54 READY REPLACE ROLLER 3

Lamp status	Green light on
Message	The life of the Pickup roller of Tray3 has expired.

Troubleshooting

The picking roller of Tray3 is at the end of its life. Replace the picking roller. Contact a service representative.

6.1.55 READY REPLACE ROLLER 4

Lamp status	Green light on
Message	The life of the Pickup roller of Tray4 has expired.

Troubleshooting

The picking roller of Tray4 is at the end of its life. Replace the picking roller. Contact a service representative.

6.1.56 READY REPLACE ROLLER M

Lamp status	Green light on
Message	The life of the Pickup roller of MFP has expired.

Troubleshooting

The picking roller of the multi-purpose tray is at the end of its life.
Replace the picking roller. Contact a service representative.

6.1.57 READY REPLACE TONER KIT

Lamp status	Orange light on
Message	Toner Cartridge replace time.(Time presses)

Troubleshooting

The life of the toner cartridge has expired.

6.1.58 READY REPLACE TRANSFER

Lamp status	Green light on
Message	The life of the transfer unit has expired.

Troubleshooting

The transfer unit is at the end of its life. Replace the transfer unit.
Contact a service representative.

6.1.59 READY [TRAY x] EMPTY

Lamp status	Green light on
Message	There are no papers in the cassette.

Troubleshooting

The printer is in Ready Mode, and the displayed tray is empty.

Put paper in the tray. If more than one tray is empty, the display indicates in order of tray 1,2,3, and 4.

Note that the printer cannot detect if the Multi-purpose tray is empty.

6.1.60 REPLACE DEV. KIT

Lamp status	Orange light on
Message	The life of the OPC Drum unit has expired.

Troubleshooting

The toner cartridge is at the end of its life. You cannot print.Replace the cartridge.

6.1.61 REPLACE TONER KIT

Lamp status	Orange light on
Message	The life of the toner cartridge has expired.

Troubleshooting

The toner cartridge is at the end of its life. Replace the cartridge.

6.1.62 SLEEPING

Lamp status	Off
Message	The power saving mode

Troubleshooting

The power saving mode is selected.

When data file is downloaded or any button is pressed, the printer goes online.

6.1.63 TONER EMPTY

Lamp status	Orange light on
Message	No more toner.

Troubleshooting

1) Check the life span of the toner cartridge. (If it has ended, replace it.)

2) Check the harness connected between the Engine controller and the toner empty sensor.
(If the harness is out, insert it to the connector.)

3) In the Engine diagnostic mode, check the toner empty sensor.
(If it is not operating, replace the toner empty sensor board.)

6.1.64 TONER KIT NOT INSTALLED

Lamp status	Orange light on
Message	The toner cartridge is not mounted.

Troubleshooting

1) Check the harness connected between the Engine controller and the drum cartridge.
(If the harness is out, insert it to the connector.)

2) Check the harness connected between the Engine controller and the toner cartridge.
(If the harness is out, insert it to the connector.)

3) In the Engine diagnostic mode, operate the toner cartridge to check if it is operating.
(If it is not operating, replace the toner container unit.)

4) Replace the Engine controller.

6.1.65 TONER LOW STOP PRESS CONT KEY

Lamp status	Orange light Flickering
Message	In the event of the toner low, it is set up not to print.

Troubleshooting

To continuously print, on-line/continue button should be pressed each time print is desired.

6.1.66 TONER MOTOR LOCK ERROR

Lamp status	Orange light on
Message	An error has occurred at the toner motor.

Troubleshooting

1) Check the harness connected between the Engine controller and the toner motor.
(If the harness is out, insert it to the connector.)

2) In the Engine diagnostic mode, operate the toner motor to check if the motor is operating.
(If it is no operating, replace the toner motor.)

3) Replace the Engine controller.

6.1.67 TONER SUPPLY LACK

Lamp status	Orange light on
Message	The toner supplying error has occurred.

Troubleshooting

1) Check the sealing tape whether it is removed from the toner cartridge and the drum cartridge.
(If it is not removed, clean the inside of the set and remove the tape, and then mount it.)

2) Check the harness connected between the Engine controller and the toner motor.
(If the harness is out, insert it to the connector.)

3) Check the harness connected between the Engine controller and the toner ID board.
(IF the harness is out, insert it to the connector.)

4) Check the harness connected between the Engine controller and the DEVE board.
(If the harness is out, insert it to the connector.)

5) In the Engine diagnostic mode, operate the toner motor to check if the motor is operating.
(If it is not operating, replace the toner motor.)

6) Check the sensor of the toner empty board whether it is dirty and there are foreign objects.
(If it is dirty or there is a foreign object, remove it.)

7) Replace the toner container.

8) Replace the drum cartridge.

6.1.68 TOP BIN FULL

Lamp status	Orange light on
Message	The top bin is full of papers. Remove papers from the top bin.

Troubleshooting

1) Check the harness connected between the Engine controller and the exit board.
(If the harness is out, insert it to the connector.)

2) In the Engine diagnostic mode, operate the full_R sensor to check if the sensor is operating.
(If it is not operating, replace the exit board.)

3) Check the damage or warping of the sensor actuator.
(If it is damaged or warped, replace the top bin full sensor.)

4) Replace the Engine controller.

6.1.69 TOP FAN MOTOR LOCK ERROR

Lamp status	Orange light on
Message	An error has occurred at the top fan.

Troubleshooting

1) Check the harness connected between the Engine controller and the exit board.
(If the harness is out, insert it to the connector.)

2) Check the harness connected between the exit board and the top fan.
(If the harness is out, insert it to the connector.)

3) In the Engine diagnostic mode, operate the top fan to check the fan is operating.
(If it is not operating, replace the top fan.)

4) Check the No. 1 pin of the exit board whether 24V is outputted and check the D5 whether it is normal.
(If 24V is not outputted or the part is abnormal, replace the exit board.)

5) Replace the Engine controller.

6.1.70 TRANSFER UNIT NOT INSTALLED

Lamp status	Orange light on
Message	The transfer unit is not installed.

Troubleshooting

1) Check the harness connected between the Engine controller and the paper size board.
(If the harness is out, insert it to the connector.)

2) In the Engine diagnostic mode, operate the MPF trans sensor to check if it is operating.
(If it is not operating, replace the paper size board.)

3) Replace the MPF transfer.

6.1.71 TRAY 1 PICKUP ARM ERROR

Lamp status	Orange light on
Message	An error has occurred at the tray 1 pickup arm.

Troubleshooting

1) Check the harness connected between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)
2) Check the harness connected between the TA board and the Pickup unit.
(If the harness is out, insert it to the connector.)
3) Check the harness connected between the Pickup unit and the cassette paper sensing board.
(If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the tray 1 SOL to check if the solenoid is operating.
(If it is not operating, replace the Pickup solenoid.)
5) Check the hook of the Pickup unit whether it is operating.
(If it is not operating normally, replace the Pickup unit.)
6) Replace the cassette paper sensing board.
7) Replace the TA board.

6.1.72 TRAY 2 PICKUP ARM ERROR

Lamp status	Orange light on
Message	An error has occurred at the tray 2 pickup arm.

Troubleshooting

1) Check the harness connected between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)
2) Check the harness connected between the TA board and the Pickup unit.
(If the harness is out, insert it to the connector.)
3) Check the harness connected between the Pickup unit and the cassette paper sensing board.
(If the harness is out, insert it to the connector.)
4) In the Engine diagnostic mode, operate the tray 2 SOL to check if the solenoid is operating.
(If it is not operating, replace the Pickup solenoid.)
5) Check the hook of the Pickup unit whether it is operating.
(If it is not operating normally, replace the Pickup unit.)
6) Replace the cassette paper sensing board.
7) Replace the TA board

6.1.73 TRAY 3 PICKUP ARM ERROR

Lamp status	Orange light on
Message	An error has occurred at the tray 3 pickup arm.

Troubleshooting

1) Check the connecting state of the SCF cable.
(If the cable is out, insert it to the connector.)

2) Check the harness connected between the SCF controller and the Pickup unit.
(If the harness is out, insert it to the connector.)

3) Check the harness connected between the Pickup unit and the cassette paper sensing board.
(If the harness is out, insert it to the connector.)

4) In the Engine diagnostic mode, operate the tray 3 SOL to check if the solenoid is operating.
(If it is not operating, replace the Pickup solenoid.)

5) Check the hook of the Pickup unit whether it is operating.
(If it is not operating normally, replace the Pickup unit.)

6) Replace the cassette paper sensing board.

7) Replace the SCF controller.

6.1.74 TRAY 4 PICKUP ARM ERROR

Lamp status	Orange light on
Message	An error has occurred at the tray 4 pickup arm.

Troubleshooting

1) Check the connecting state of the SCF cable.
(If the cable is out, insert it to the connector.)

2) Check the harness connected between the SCF controller and the Pickup unit.
(If the harness is out, insert it to the connector.)

3) Check the harness connected between the Pickup unit and the cassette paper sensing board.
(If the harness is out, insert it to the connector.)

4) In the Engine diagnostic mode, operate the tray 4 SOL to check if the solenoid is operating.
(If it is not operating, replace the Pickup solenoid.)

5) Check the hook of the Pickup unit whether it is operating.
(If it is not operating normally, replace the Pickup unit.)

6) Replace the cassette paper sensing board.

7) Replace the SCF controller.

6.1.75 [TRAY x] [PAPER SIZE] EMPTY

Lamp status	Orange light on
Message	The appointed tray is empty and all other trays are empty. Insert papers.

Lamp status	Orange light Flickering
Message	When the auto switch is on, the papers in the appointed cassette is empty, but the other cassette has papers.

Insert papers in the appointed cassette.
If papers in the other cassette are to be used, press the [Online/Continue] button.

Troubleshooting

1) Check the harness connected between the Engine controller and the TA board.
(If the harness is out, insert it to the connector.)

2) Check the harness connected between the TA board and the Pickup unit.
(If the harness is out, insert it to the connector.)

3) Check the harness connected between the Pickup unit and the cassette sensing board.
(If the harness is out, insert it to the connector.)

4) Check the pickup unit.
(If it is inferior part or warped part, replace it.)

5) Check the damage of the cassette sensing B□.
(If it is damaged, replace the cassette sensing board.)

6) In the Engine diagnostic mode, operate the running count of the paper if it is under 39.
(If it is over 39, replace the Pickup unit.)

7) Replace the TA board.

6.1.76 [TRAY x] NOT INSTALLED

Lamp status	Green light on
Message	The cassette selected for the paper feeding is open.

Troubleshooting

1) Check for any warping or damage to the cassette
(In the case of warping or damage, replace the cassette)

6.1.77 [TRAY x] OPEN

Lamp status	Green light on
Message	Unused Cassette is open

Troubleshooting

Push the cassette to the end.

6.1.78 WAIT IMAGE

Lamp status	Orange light on
Message	Cannot read the program ROM of the Video Card.

Troubleshooting

1) Re-Download the Firm Ware
2) Replace the Video Controller

6.1.79 WRONG PAPER SIZE [PAPER] IN [TRAY x]

Lamp status	Orange light on
Message	Intended printed paper and the mounted paper size is different. Input the desired paper type.

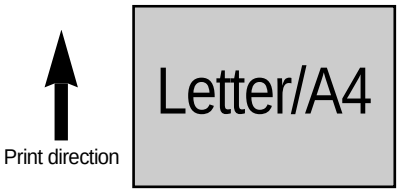
Troubleshooting

1) Check for the harness connected between the Engine controller and the paper size board.
   (If the harness is out, insert it to the connector)
2) In the Engine diagnostic mode, operate the tray size to see if the size is appropriate.
   (If the size does not match, replace the paper size board)
3) Check if the paper size acknowledging home of the cassette is normal.
   (If it is not normal, replace the cassette)
4) Check if the unit paper sensor is normal
   (If it is not normal, replace the unit paper sensor)
5) Replace the Engine controller

6.2 PICTURE DELINQUENCY CONDITION AND TROUBLESHOOTING.

This printer is a high-speed printer which supports A3 size paper. When basing on A4 size paper, it will print horizontally.

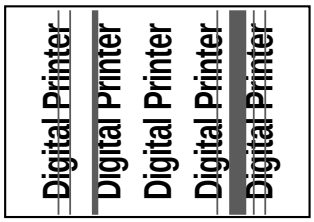
By the delinquency condition, sample picture is based on the A4 size (Horizontal direction print)



Print direction for A4 size paper

6.2.1 VERTICAL BLACK LINE AND BAND

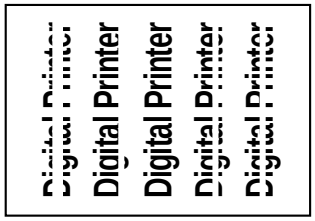
Status
1. To the vertical direction of the image thin and fine black lines occur.
2. To the vertical direction of the image slight scratching, dark or light band lines occur.



Causes and checking points	Solution and troubleshooting points
1. The drum's surface may be damaged. The drum may be scratched. Due to the over accumulated foreign substance on the charging roller. 2. During the duplex printing, moisture can penetrate to the charging roller and cause the problem. 3. Due to broken picture data and LSU noise. 4. The OPC surface coating of the drum cartridge may peel off and cause the problem.	1. Replace the drum cartridge.

6.2.2 VERTICAL WHITE LINE

Status To the vertical direction of the image, fine and straight white line is/are formed.



Causes and checking points	Solution and troubleshooting points
1. The problem may occur when foreign substance penetrates between the development roller in the drum cartridge and the doctor blade. 2. The problem may occur if the separator of the drum cartridge scratches the surface of the OPC. 3. The problem may occur if there is foreign substance accumulation to the inner/ exterior of the LSU.	1,2. Replace the drum cartridge. 3. Clean LSU

6.2.3 HORIZONTAL BLACK BAND

Status Light or Dark Horizontal Black Band occurs in a fixed interval.
(Interval of the band may not be fixed)

Causes and checking points	Solution and troubleshooting points
1. It may occur due to the instability of the drum cartridge or unstable terminal contact. (Faulty drum ground contact point.)	1. Replace the drum cartridge
2. It may occur when the sides of the terminal unit of the drum cartridge are polluted. • OPC Drum - 94 mm • Developing roller - 45 mm • Transfer roller. - 57 mm	2. Clean the Contacting point

6.2.4 Black/White Spot

Status 1. When Black spots are formed intervalically to the image.
2. When white spots are formed intervalically in the image.

Causes and checking points	Solution and troubleshooting points
1. When black spots are formed perpendicular to the image, it may be due to the damage to the drum surface. • 94 mm Interval : OPC Drum	1. Replace the drum cartridge.
2. If 45mm intervalical black spot occurrence in the white image, it may be due to pin hole or damage to the charging roller. • OPC Drum :94mm • Charging roller : 45mm	2. Confirm the contacting point.
3. In the black image, if a particular part(s) show ripped image at 57mm interval, this may be due to the instability to the contacting point of the transferring point or instability of the transfer voltage.	

6.2.5 LIGHT IMAGE

Status When the overall image is Light but ghost-effect does not occur.

Causes and checking points	Solution and troubleshooting points
1. Within the drum cartridge the distance between the development roller and the OPC may be larger than the standard. (A warp or damage to the gap support joint)	1. Replace drum cartridge.
2. When the toner distribution does not function well within the toner cartridge.	2. Confirm the contacting point.
3. When the density control toner sensor does not operate normally.	
4. Within the HVPS, when the connection between the high voltage terminal and the high voltage terminal in the set is bad.	
5. When the output of the HVPS is not normal.	

6.2.6 DARK IMAGE OR A BLACK IMAGE

Status When the overall image is black.

Causes and checking points	Solution and troubleshooting points
1. It may occur when sufficient charging voltage is not being outputted from HVPS.	1. Replace drum cartridge.
2. Charge voltage is not applyed. Could be failure of the supplying unit and HVPS.	2. Confirm the contacting point.
3. Charging high voltage is not admitted due to the poor contact between the drum cartridge and the charging roller.	

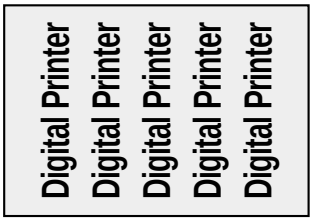
6.2.7 UNEVEN DENSITY

Status When there is a density distribution difference of the right and left

Causes and checking points	Solution and troubleshooting points
1. When there is an uneven power distribution of the sides springs of the transfer roller, or assembly failure of the transfer roller or damage to the transfer roller gap ring. 2. When there is a severe variation to the left and right of the doctor gap of the drum cartridge. 3. Within the developer, when the variation to the left and right of the gap between the drum and the developing roller.	1. Replace transfer roller or drum.

6.2.8 BACKGROUND

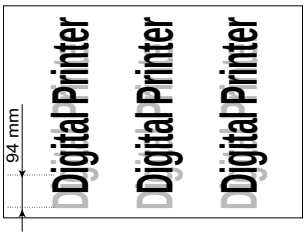
Status When the image area of the image is showing light gray all over.



Causes and checking points	Solution and troubleshooting points
1. The life span of the charging roller may have ended. 2. May occur when the resistance of the charging roller is higher than the spec. 3. When the ground in the drum maybe completely open. 4. May occur when the value of the OPC surface transposition value and the developing (Bias) voltage difference is far less.	1. Replace the drum cartridge

6.2.9 GHOST (1)

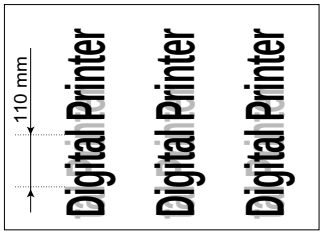
Status When Ghost occurs at a interval of approximately 94mm (OPC drum Interval) to the overall image.



Causes and checking points	Solution and troubleshooting points
1. The life span of the charging roller may have ended and is not functioning. 2. Ghost may be caused by a decline of the eraser lamp's ray power, causing a residual voltage on the OPC surface.	1. Replace drum cartridge.

6.2.10 GHOST (2)

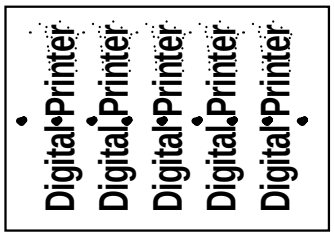
Status When Ghost-effect occurs at an interval of approximately 110mm (OPC drum Interval) to the overall image. (When OHP paper or other transparent papers are used)



Causes and checking points	Solution and troubleshooting points
1. If ghost occurs at a interval of (110mm) Electric static may affect he heat roll of the fusing unit on OHP. 2. Ghost may occur due to the Cold Offset/Hot offset of the fusing unit. (110mm interval)	1. Confirm the charging brush of the fusing unit. 2. Replace the fusing unit.

6.2.11 STAINS ON THE FACE OF THE PAGE

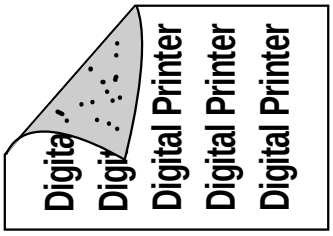
Status When the image and/or the face of the page is/are contaminated from the top of the page to the bottom of the page.



Causes and checking points	Solution and troubleshooting points
1. This may be caused by the leakage of the toner due to a bad seal on the inner side of the drum cartridge.	1. Replace the drum cartridge.
2. In the case of the transfer roller contamination, image contamination (back page contamination).	2. Replace the transfer roller.

6.2.12 STAINS ON THE BACK OF THE PAGE - (1)

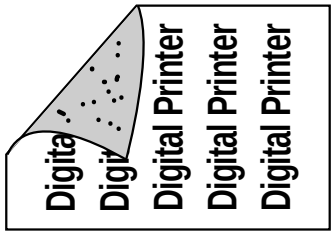
Status When the back of the page is contaminated at a period of 55mm~57mm



Causes and checking points	Solution and troubleshooting points
In the case of the transfer roller contami-nation, image contamination (back of the page contamination) may occur.	Replace the transfer roller

6.2.13 STAINS ON THE BACK OF THE PAGE - (2)

Status When the back of the page is contaminated at a period of 55mm~57mm



Causes and checking points	Solution and troubleshooting points
This may be due to the contamination of the Pressure-Roll causing the (Back of the page) contamination.	Replace the Pressure-Roll

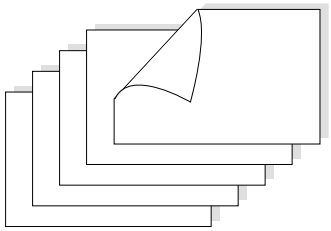
6.2.14 BLANK PAGE PRINT OUT - (1)

Status When attempting to print the image, blank page is printed.

Causes and checking points	Solution and troubleshooting points
Check if the Ground-OPC and the developer Ground contacting terminal is connected properly.	Replace the drum cartridge

6.2.15 BLANK PAGE PRINT OUT - (2)

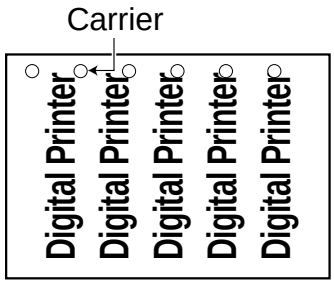
Status 1. When attempting to print the image, blank page is printed
2. When attempting to print the image, blank pages are continuously printed.



Causes and checking points	Solution and troubleshooting points
Check if the LSU Beam is functioning well.	Replace the LSU unit

6.2.16 CARRIER ON THE FACE OF THE PAGE

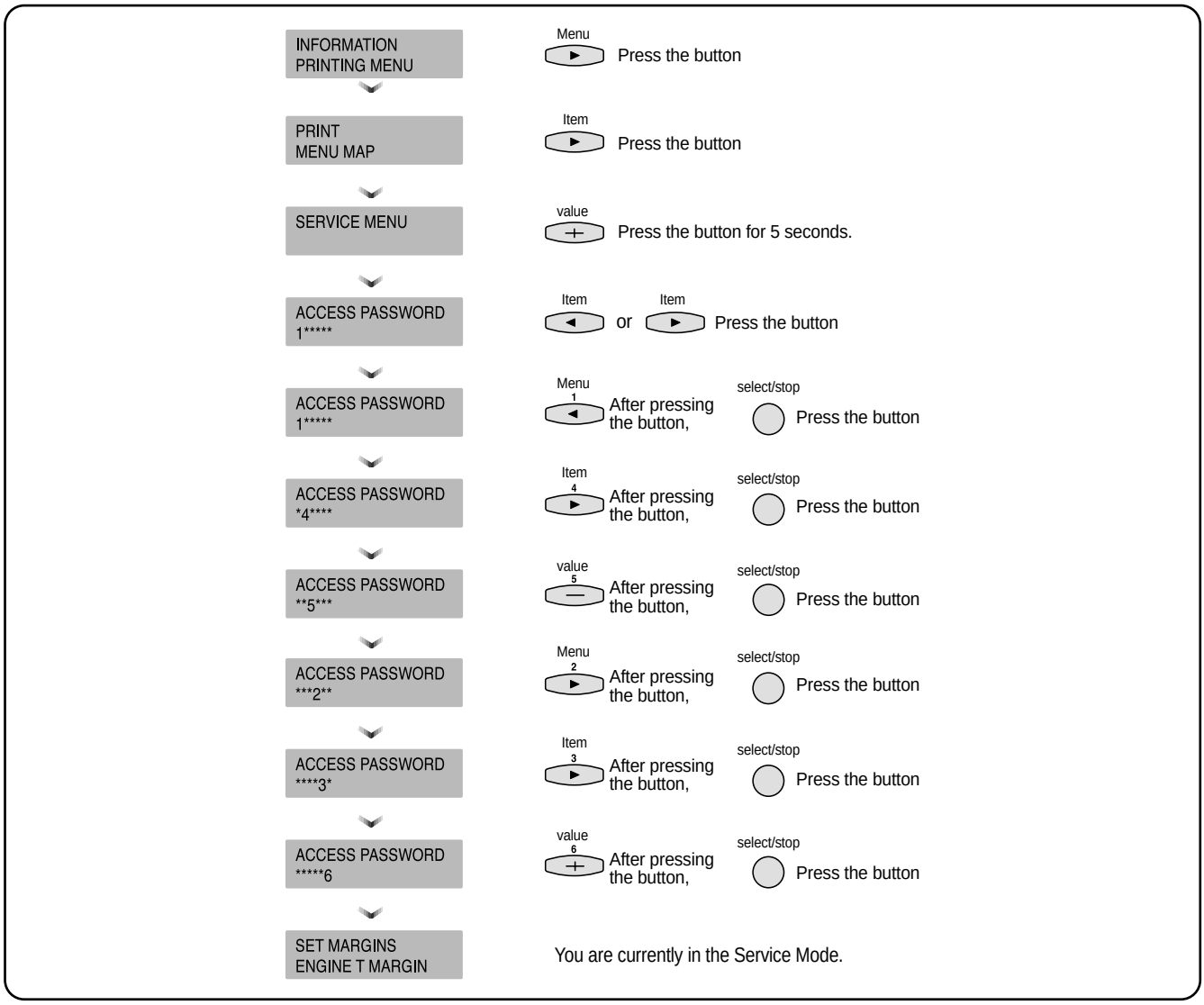
Status 1. When printing the image, the carrier is developed on the face of the page.



Causes and checking points	Solution and troubleshooting points
1. Check if the Deve Bias contacting point is unstable.	1. Replace HVPS
2. Check for the proper output of the High Voltage.	2. Confirm the contacting point terminal.
3. Life span of the OPC	3. Replace the drum cartridge.

6.3 Service Menu

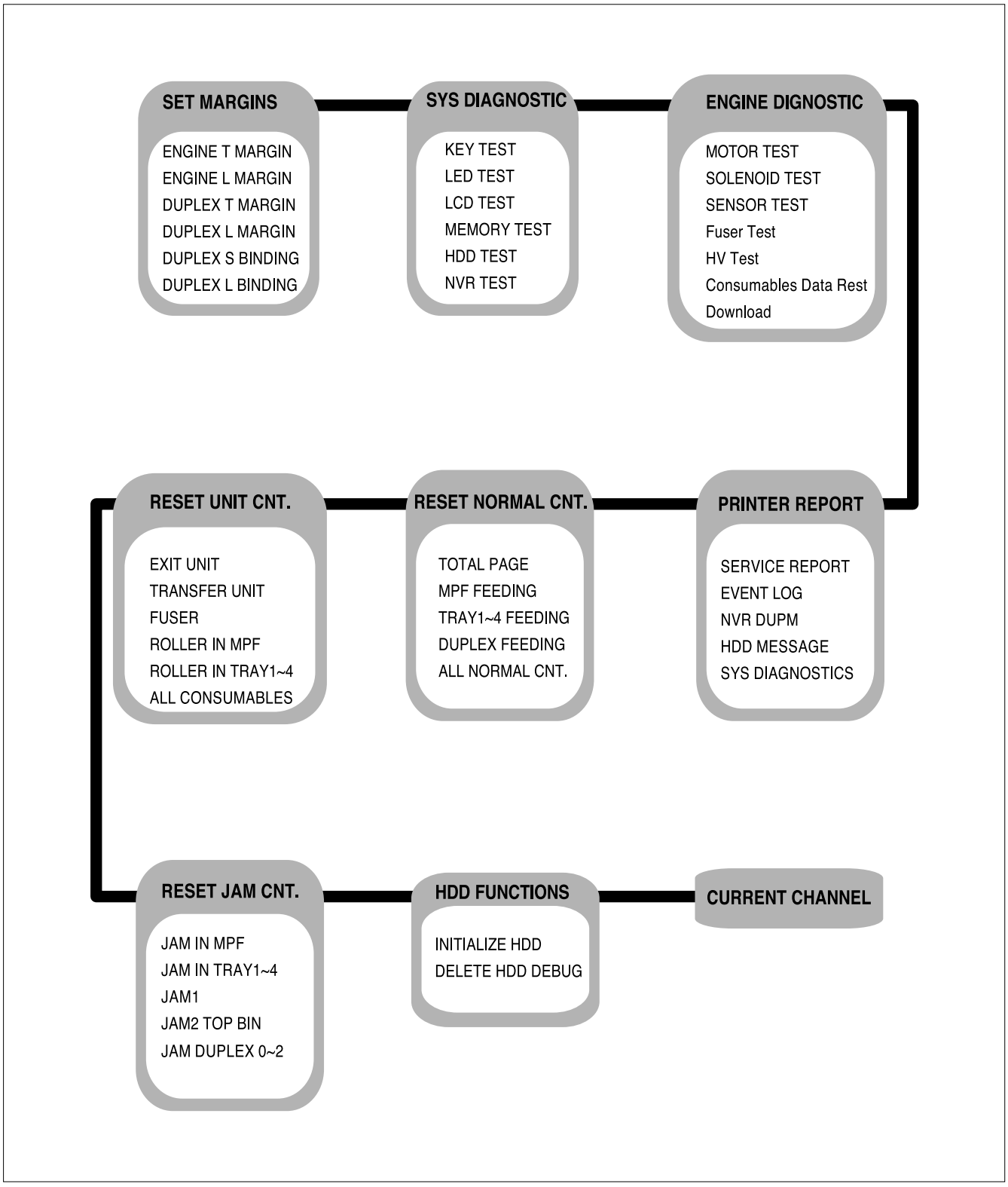
Press the following keys to enter the service menu.



6.3.1 OPE Panel operation in the Service Menu

KEY	Definition	Description
Menu ◀/▶	Cancel	Exit Service Menu
Item ◀/▶	Sub-Menu:Select Test item	Examine the service menu function within SET Margin, SYS Diagnostic, etc. and select Menu will change after pressing the (◀/▶) key.
Value -/+	Input data	Within the selected function, examine the items and select. Menu will change after pressing the (◀/▶) key.
Select/cancel	Execute	Selected menu will be executed.
Online/continue	Cancel	Exiting the service menu

6.3.2 Service menu item is divded into 9 functions menus. Detailed functions of each item are explained on the next page.



NO.	Item	Function explanation	Remarks
1	SET MARGINS	It selects the value of the margin of the engine of the printer and adjusts the margins of the printed material. This selected value must be fixed in the H/W so it is applied to all the printed material.	
2	SYS DIAGNOSTIC	It examines the key, LED and LCD functions attached to the instrument.	
3	ENGINE DIAGNOSTIC	It tests the functions of the Motor, Fan, Sensor, Solenoid and fuser which are related to the Engine. It is also used to download the Engine ROM.	EDC MODE
4	PRINT REPORT SERVICE REPORT	It is a function to print various reports needed for Product maintenance.	
5	RESET NORMAL CNT.	It is a function to delete the counter which stores the numeric quantity of the printed pages up to date.	
6	RESET UNIT CNT.	Reset the counter which stores the usage of consumable parts.	
7	RESET JAM CNT.	It is a function to delete the Jam classification occurrence number.	
8	HDD FUNCTIONS	It is a function to execute the operation related to HDD.	
9	CURRENT CHANNEL	It is a function to mark the present data input unit.	Function used in the development purpose.
10	MAX FILE NUMBER	It is a function to fix the maximum Q'ty of stored file to HDD.	
11	FS VERIFICATION	It is a function to check file system of HDD for system initial.	
12	RDS ACCOUNT SEND	Counter ON/OFF, counter means the number of times to send the RDS.	
13	RDS INTERVAL	It is a function to control the interval which is time to transfer data to RDS sensor.	

6.3.4 SET MARGIN

NO.	Item	Function Explanation	Remarks
1	ENGINE T MARGIN	Selecting the value of the Top Margin of the Printer Engine	0.0~0.99(mm) : 0.1 increase 0.0~0.40(inch) : 0.01 increase
2	ENGINE L MARGIN	Selecting the value of the Left Margin of the Printer Engine.	
3	DUPLEX T MARGIN	Selecting the value of the Top Margin when double sided printing.	
4	DUPLEX L MARGIN	Selecting the value of the Left Margin when double sided printing.	0.0~22(mm) : 1 mm increase 0.0~0.88(inch) : 0.04 inch increase
5	DUPLEX S BINDING	Selecting the value of the binding part of the margin when short side double sided printing.	
6	DUPLEX L BINDING	Selecting the value of the binding part of the margin when long side double sided printing.	

6.3.5 SYS DIAGNOSTICS

NO.	Item	Function Explanation	Remarks
1	KEY TEST	Testing the key operating condition from view of the OP Panel.	
2	LED TEST	Testing the LED operating condition from the view of the OP Panel.	
		POSITION LED 1~10 , PAPER JAM LED ,	
		PAPER EMPTY LED , TONER EMPTY LED ,	
		COVER OPEN LED	
3	LCD TEST	Testing the LCD operating condition.	
		1ST LINE , 2ND LINE , FULL LINE	
4	MEMORY TEST	Testing the operating condition of the memory mounted on the printer.	
5	HDD TEST	Testing the operating condition of HDD.	
6	NVR TEST	Testing the operating condition of NVR: NVRAM TEST	NVRAM TEST

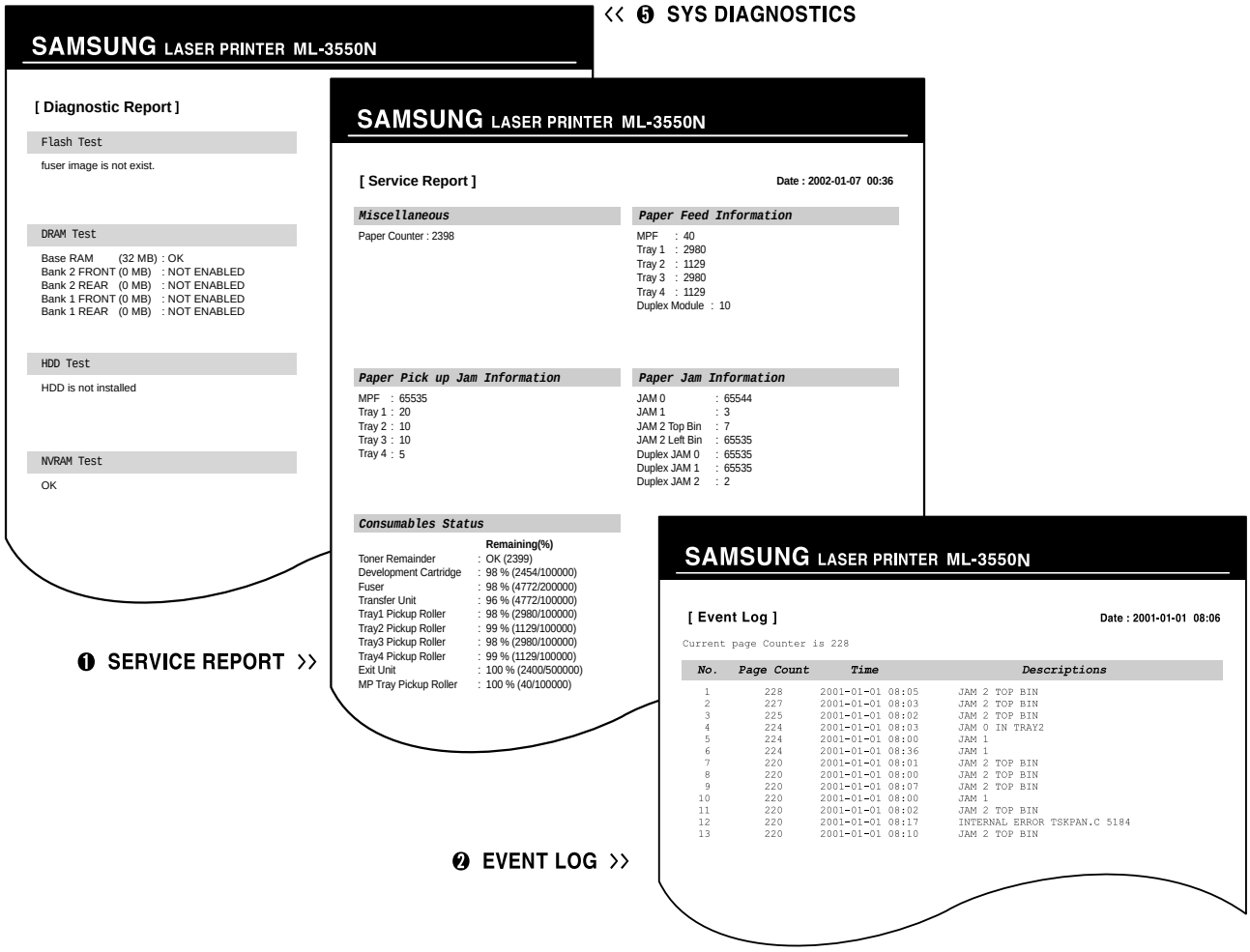
• **NVRAM** : Nonvolatile RAM. It is a RAM where the contents are preserved even after the power out.

6.3.6 ENGINE DIAGNOSTICS (EDC Mode)

Detailed function is explained on the next page (Refer to the Chart 6.4)

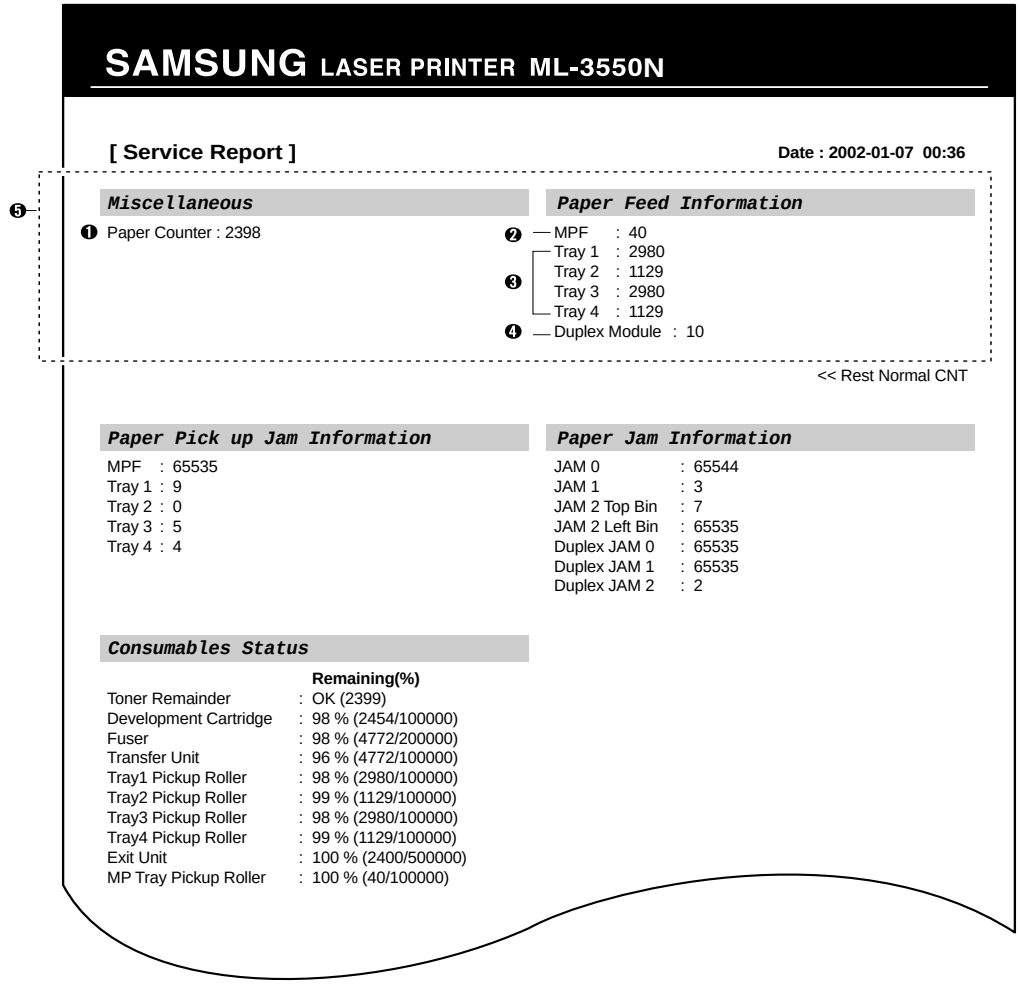
NO.	Item	Function Explanation	Remarks
1	MOTOR TEST	Testing the operation of each Motor and Fan	
2	SOLENOID TEST	Testing the operation of each Clutch and Solenoid.	
3	SENSOR TEST	Testing the operation of each Sensor.	
4	Fuser Test	Tests mounted temperature fuser differentiation	
5	HV Test	It can be tested with the discretion of the HV Power generated from the HVPS.: HV(High Voltage) • **HVPS** : High Voltage Power Supply.	HV(High Voltage)
6	Download	New Engine ROM can be downloaded.	

6.3.7 PRINT REPORT


SAMSUNG LASER PRINTER ML-3550N
[Diagnostic Report]
Flash Test
fuser image is not exist.
DRAM Test
Base RAM (32 MB) : OK
Bank 2 FRONT (0 MB) : NOT ENABLED
Bank 2 REAR (0 MB) : NOT ENABLED
Bank 1 FRONT (0 MB) : NOT ENABLED
Bank 1 REAR (0 MB) : NOT ENABLED
HDD Test
HDD is not installed
NVRAM Test
OK
<< ❺ SYS DIAGNOSTICS
SAMSUNG LASER PRINTER ML-3550N
[Service Report]
Date : 2002-01-07 00:36
Miscellaneous
Paper Counter : 2398
Paper Feed Information
MPF : 40
Tray 1 : 2980
Tray 2 : 1129
Tray 3 : 2980
Tray 4 : 1129
Duplex Module : 10
Paper Pick up Jam Information
MPF : 65535
Tray 1 : 20
Tray 2 : 10
Tray 3 : 10
Tray 4 : 5
Paper Jam Information
JAM 0 : 65544
JAM 1 : 3
JAM 2 Top Bin : 7
JAM 2 Left Bin : 65535
Duplex JAM 0 : 65535
Duplex JAM 1 : 65535
Duplex JAM 2 : 2
Consumables Status
Remaining(%)
Toner Remainder : OK (2399)
Development Cartridge : 98 % (2454/100000)
Fuser : 98 % (4772/200000)
Transfer Unit : 96 % (4772/100000)
Tray1 Pickup Roller : 98 % (2980/100000)
Tray2 Pickup Roller : 99 % (1129/100000)
Tray3 Pickup Roller : 98 % (2980/100000)
Tray4 Pickup Roller : 99 % (1129/100000)
Exit Unit : 100 % (2400/500000)
MP Tray Pickup Roller : 100 % (40/100000)
❶ SERVICE REPORT >>
SAMSUNG LASER PRINTER ML-3550N
[Event Log]
Date : 2001-01-01 08:06
Current page Counter is 228
No. Page Count Time Descriptions
1 228 2001-01-01 08:05 JAM 2 TOP BIN
2 227 2001-01-01 08:03 JAM 2 TOP BIN
3 225 2001-01-01 08:02 JAM 2 TOP BIN
4 224 2001-01-01 08:03 JAM 0 IN TRAY2
5 224 2001-01-01 08:00 JAM 1
6 224 2001-01-01 08:36 JAM 1
7 220 2001-01-01 08:01 JAM 2 TOP BIN
8 220 2001-01-01 08:00 JAM 2 TOP BIN
9 220 2001-01-01 08:07 JAM 2 TOP BIN
10 220 2001-01-01 08:00 JAM 1
11 220 2001-01-01 08:02 JAM 2 TOP BIN
12 220 2001-01-01 08:17 INTERNAL ERROR TSKPAN.C 5184
13 220 2001-01-01 08:10 JAM 2 TOP BIN
❷ EVENT LOG >>

NO.	Item	Function Explanation	Remarks
❶	SERVICE REPORT	It shows the Total page counter, each trays running count, each tray's Jam error occurrence number, categorized Jam occurrence number, each consumable part usage level.	
❷	EVENT LOG	It shows various errors occurred during the usage of the printer (It is stored in HDD):	Only possible when HDD is mounted.
❸	NVR DUMP	It shows the setting values of the NVR. The one paper show the real values of the NVRAM, and the other paper shows the values of the mirror in the system.	NVRAM (Nonvolatile RAM)
❹	HDD MESSAGE	It shows various de-bug messages stored in HDD.	Only possible when HDD is mounted. Used for development purpose.
❺	SYS DIAGNOSTICS	After executing Flash memory test, Ram test, HDD test, NVRAM test, it shows the results.	

6.3.8 RESET NORMAL CNT

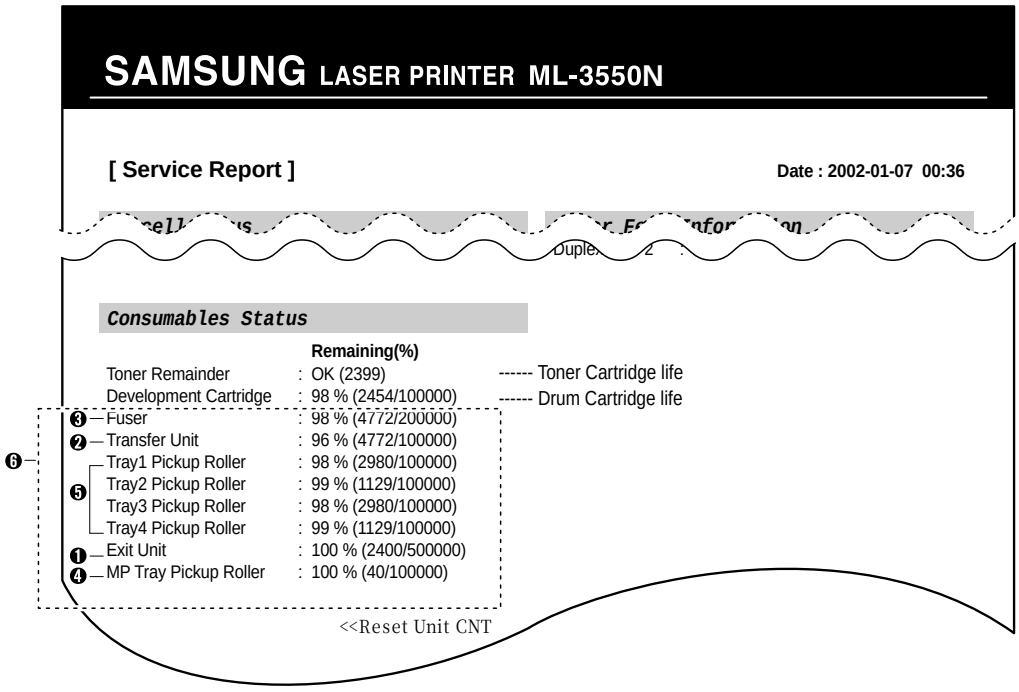

SAMSUNG LASER PRINTER ML-3550N
[Service Report]
Date : 2002-01-07 00:36
❺
Miscellaneous
❶ Paper Counter : 2398
Paper Feed Information
❷ MPF : 40
❸ Tray 1 : 2980
Tray 2 : 1129
Tray 3 : 2980
Tray 4 : 1129
❹ Duplex Module : 10
<< Rest Normal CNT
Paper Pick up Jam Information
MPF : 65535
Tray 1 : 9
Tray 2 : 0
Tray 3 : 5
Tray 4 : 4
Paper Jam Information
JAM 0 : 65544
JAM 1 : 3
JAM 2 Top Bin : 7
JAM 2 Left Bin : 65535
Duplex JAM 0 : 65535
Duplex JAM 1 : 65535
Duplex JAM 2 : 2
Consumables Status
Remaining(%)
Toner Remainder : OK (2399)
Development Cartridge : 98 % (2454/100000)
Fuser : 98 % (4772/200000)
Transfer Unit : 96 % (4772/100000)
Tray1 Pickup Roller : 98 % (2980/100000)
Tray2 Pickup Roller : 99 % (1129/100000)
Tray3 Pickup Roller : 98 % (2980/100000)
Tray4 Pickup Roller : 99 % (1129/100000)
Exit Unit : 100 % (2400/500000)
MP Tray Pickup Roller : 100 % (40/100000)

NO.	Item	Function Explanation	Remarks
❶	TOTAL PAGE	Erases the all outputting counts to zero.	It is a item for the page counter of the service report.
❷	MPF FEEDING	Erases all feeding counts of the MPF to zero.	It is the MPF item among the paper feed information of the service report.
❸	TRAY1~4 FEEDING	Erases all feeding counts of eath tray to zero.	It is the Tray1~4 item among the paper feed information of the service report.
❹	DUPLEX FEEDING	Erases the counts of the duplex unit to zero.	It is the Duplex module item among the paper feed information of the service report.
❺	ALL NORMAL CNT.	Erases all of above counts and sets each item to zero.	

⚠ Warning:

- This information informs the actual using amount and it is stored in the NVRAM.
- Do not reset it unless there is special situation. (Especially, the Total page/All normal Cnt.)

6.3.9 RESET UNIT CNT

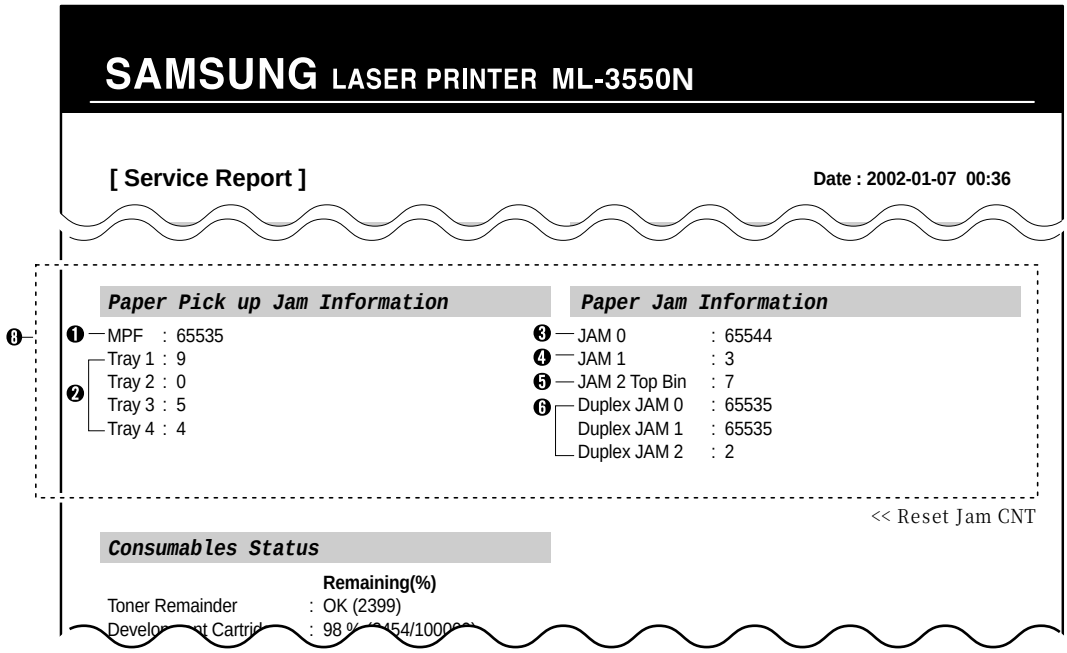

SAMSUNG LASER PRINTER ML-3550N
[Service Report]
Date : 2002-01-07 00:36
Consumables Status
Remaining(%)
Toner Remainder : OK (2399) ------ Toner Cartridge life
Development Cartridge : 98 % (2454/100000) ------ Drum Cartridge life
❸ Fuser : 98 % (4772/200000)
❷ Transfer Unit : 96 % (4772/100000)
❻ Tray1 Pickup Roller : 98 % (2980/100000)
❺ Tray2 Pickup Roller : 99 % (1129/100000)
Tray3 Pickup Roller : 98 % (2980/100000)
Tray4 Pickup Roller : 99 % (1129/100000)
❶ Exit Unit : 100 % (2400/500000)
❹ MP Tray Pickup Roller : 100 % (40/100000)
<<Reset Unit CNT

NO.	Item	Function Explanation	Remarks
❶	EXIT UNIT	Erases the ussage counts of the exit unit.	Sets the status of the consumables report.
❷	TRANSFER UNIT	Erases the transfer count to zero.	Resets the transfer unit counts.
❸	FUSER	It erases the using count of the fuser.	the fuser item among the consumables status of the service report.
❹	ROLLER IN MPF	It erases the MP tray counts.	The MP tray pickup roller item among the consumables status of the service report.
❺	ROLLER IN TRAY1~4	It erases the using counts of the Tray1~4's pickup roller to 0 to initialize it.	The Tray1~4 pickup roller item among the consumables status of the service report.
❻	ALL CONSUMABLES	It erases all of above to 0 and it initializes values of the each item.	

⚠ **Warning:**

- It initializes the consumption part and the units and it is stored to the NVRAM of the Video controller.
- When replacing the inferior parts, initialize the count value of the parts.
- Do not reset the all consumables unless there is a special situation because all values are initialized.

6.3.10 RESET JAM CNT


SAMSUNG LASER PRINTER ML-3550N
[Service Report]
Date : 2002-01-07 00:36
Paper Pick up Jam Information
Paper Jam Information
❶ MPF : 65535
❷ Tray 1 : 9
Tray 2 : 0
Tray 3 : 5
Tray 4 : 4
❸ JAM 0 : 65544
❹ JAM 1 : 3
❺ JAM 2 Top Bin : 7
❻ Duplex JAM 0 : 65535
Duplex JAM 1 : 65535
Duplex JAM 2 : 2
❽
<< Reset Jam CNT
Consumables Status
Remaining(%)
Toner Remainder : OK (2399)

NO.	Item	Function Explanation	Remarks
❶	JAM IN MPF	It erases the occurred Jam count of the MPF to 0 to initialize it.	MPF item of the paper Pickup Jam information of the service report.
❷	JAM IN TRAY1~4	It erases the occurred Jam count of the tray1~4 to 0 to initialize it.	The tray 1~4 item of the paper Pickup Jam information of the service report.
❸	JAM 0	It erases the occurred Jam count of the Jam 0 to 0 to initialize it.	The Jam 0 item of the paper Jam information of the service report.
❹	JAM 1	It erases the occurred Jam count of the Jam 1 to 0 to initialize it	The Jam1 item of the paper Jam information of the service report.
❺	JAM 2 TOP BIN	It erases the occurred Jam count of the Jam 2 at top bin to 0 to initialize it	The Jam 2 top bin item of the paper Jam information of the service report.
❻	JAM DUPLEX 0~2	It erases the occurred Jam count of the duplex 0~2 to 0 to initialize it	The duplex Jam 0~1 item of the paper Jam information of the service report.
❼	ALL JAM COUNTER	It erases all of above to 0 and it initializes the values of each item.	

⚠ Warning:

- This information informs the occurred Jam counts and it is stored in the NVRAM of the Video controller.
- Do not reset it unless there is special situation. (Especially, All Jam counter)

6.3.11 HDD FUNCTIONS

NO.	Item	Function Explanation	Remarks
1	INITIALIZE HDD	Initial (Format) the HDD. At this point, the stored data will be erased.	After finishing initialization, the printer automatically restarts.
2	DELETE HDD DEBUG	Erase the stored message in the HDD.	This function is used for development.

6.3.12 CURRENT CHANNEL

NO.	Item	Function Explanation	Remarks
1	Displaying the current data receiving unit	The current data receiving unit will be displayed among the P1284_COMP, P1 1284_NIBB, P1284_BYTE, P1284_ECP, RS232C, CHNL_TBD, NET_PORT, APPLETALK, INFRARED, UNIVERSAL, NET_PORT, WATCHHOST, FS INPUT. The ready state is CHNL_TBD.	This function is used for development.

6.4 EDC (Engine Diagnostic Control) FUNCTION

The EDC function checks the operating state of the printer Engine. It checks the state of the various motors, tests the solenoid and sensors, tests the temperature of the fuse, and measures the high voltage outputted to HVPS.

It is possible to download the latest ROM information.

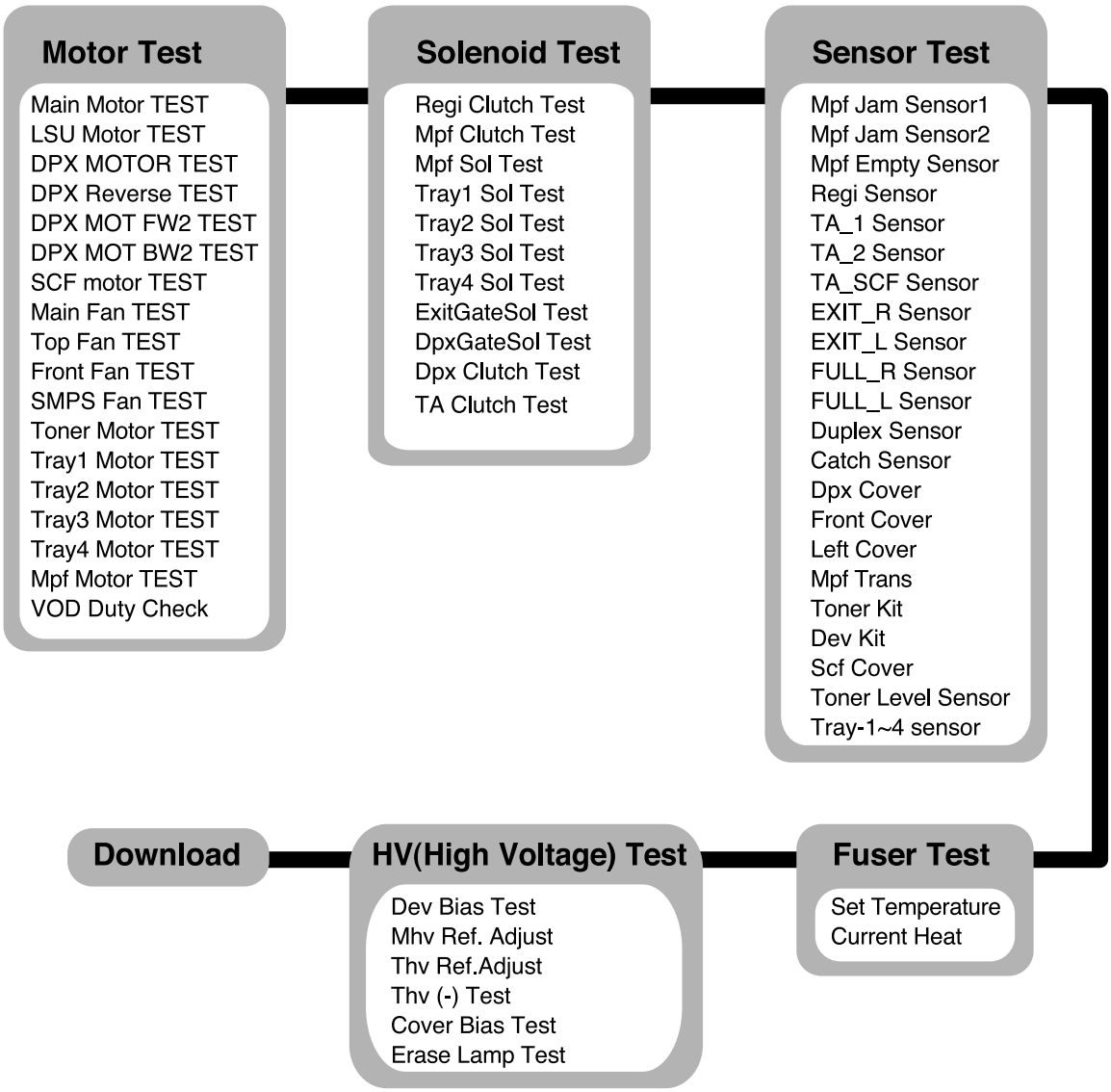
6.4.1 THE FUNCTIONS AND USAGE OF THE KEYS ON THE OP PANEL

KEY	DEFINITION	DESCRIPTION
MENU ◀/▶	Select the test module	Select the module or group for the test such as HV, Actuator, etc.
Item ◀/▶	Sub-Menu: Select the test item	Select the item for the test in the selected module/group.
Values -/+	Input data	If data is needed to input, use the -/+ key for changing the default value.
Select/Cancel	Operate	Operate the selected test.
Online/Continue	Stop/Cancel	It stops the operated process.

6.4.2 THE FUNCTIONS AND USAGE OF THE LCD

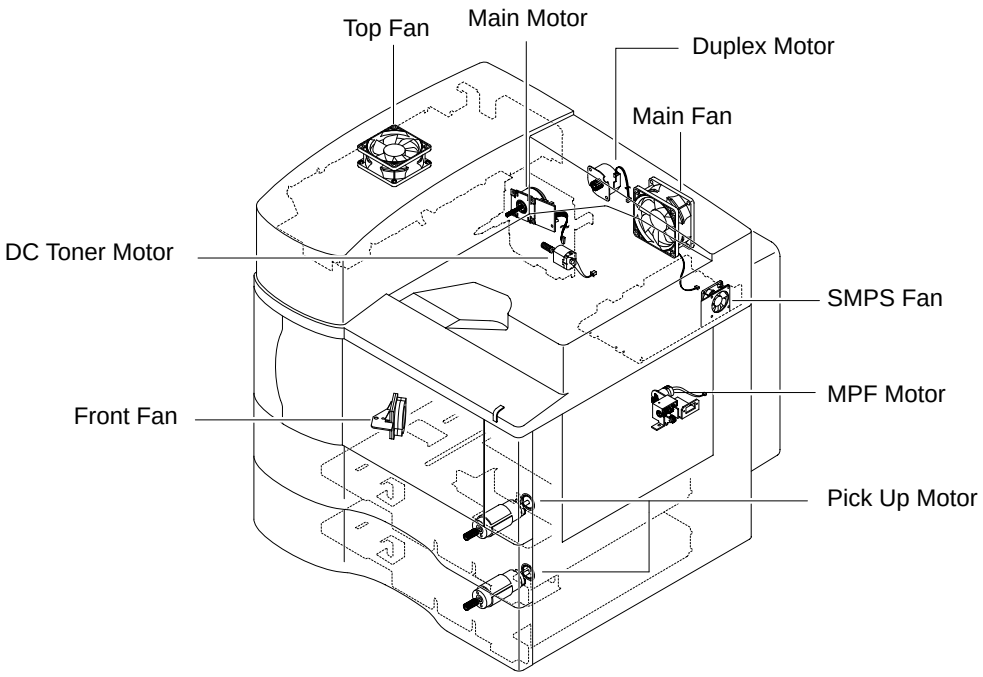
KEY	DEFINITION	DESCRIPTION	EXAMPLE 1	EXAMPLE 2
1st Line	16 Character	Tells the top/sub menu	FUSER TEST	SET TEMPERATURE
2nd Line	16 Character	Tells the data status or the setting value		Heat Adc Val = 187

6.4.3 EDC Menu


Motor Test
Main Motor TEST
LSU Motor TEST
DPX MOTOR TEST
DPX Reverse TEST
DPX MOT FW2 TEST
DPX MOT BW2 TEST
SCF motor TEST
Main Fan TEST
Top Fan TEST
Front Fan TEST
SMPS Fan TEST
Toner Motor TEST
Tray1 Motor TEST
Tray2 Motor TEST
Tray3 Motor TEST
Tray4 Motor TEST
Mpf Motor TEST
VOD Duty Check
Solenoid Test
Regi Clutch Test
Mpf Clutch Test
Mpf Sol Test
Tray1 Sol Test
Tray2 Sol Test
Tray3 Sol Test
Tray4 Sol Test
ExitGateSol Test
DpxGateSol Test
Dpx Clutch Test
TA Clutch Test
Sensor Test
Mpf Jam Sensor1
Mpf Jam Sensor2
Mpf Empty Sensor
Regi Sensor
TA_1 Sensor
TA_2 Sensor
TA_SCF Sensor
EXIT_R Sensor
EXIT_L Sensor
FULL_R Sensor
FULL_L Sensor
Duplex Sensor
Catch Sensor
Dpx Cover
Front Cover
Left Cover
Mpf Trans
Toner Kit
Dev Kit
Scf Cover
Toner Level Sensor
Tray-1~4 sensor
Download
HV(High Voltage) Test
Dev Bias Test
Mhv Ref. Adjust
Thv Ref.Adjust
Thv (-) Test
Cover Bias Test
Erase Lamp Test
Fuser Test
Set Temperature
Current Heat

6.4.4 MOTOR TEST: Testing The Various Motor And Operating Status Of The Fan In The Engine.

It starts when pressing the enter key, and it stops when inputting the on-line key. It checks the status and displays errors if there is any error.

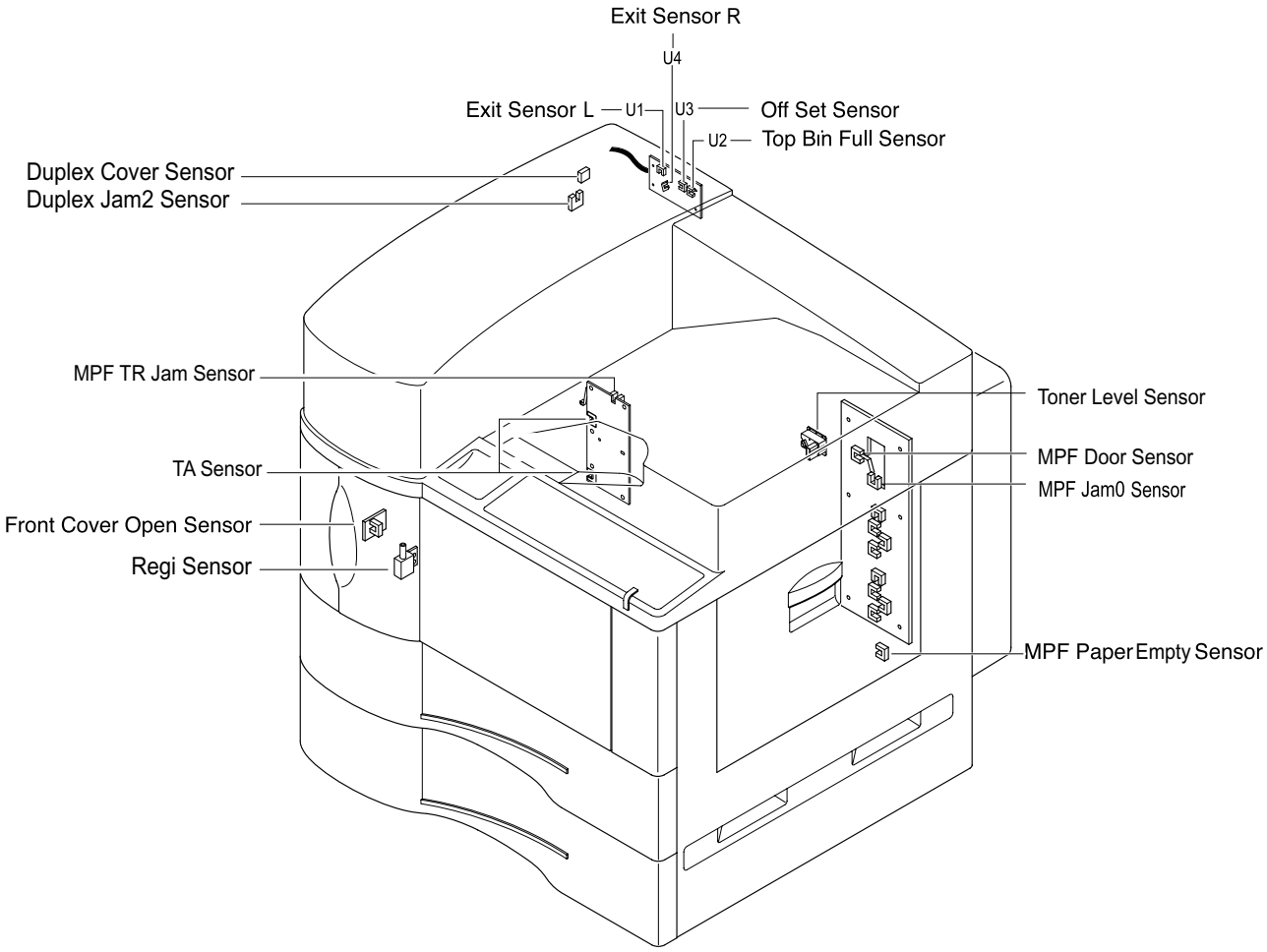


Item	Description	The default value when selecting	Remarks
Main Motor	Drive the main motor	ON	Display when lock is occurred.
LSU Motor	Drive the LSU motor. Display the status of the LSU motor and Hsync ready.	ON	Display when lock is occurred.
Duplex Forward	Drive the duplex motor forward in normal speed	ON	Not displayed when it is locked.
Duplex Reverse	Drive the duplex motor backward in normal speed	ON	Not displayed when it is locked.
Duplex FW2	Drive the duplex motor forward in high speed	ON	Not displayed when it is locked.
Duplex BW2	Drive the duplex motor backward in high speed	ON	Not displayed when it is locked.
SCF Motor	Drive the SCF take away motor. (When SCF is mounted)	ON	When the option cassette is mounted. Not displayed when it is locked.
Main Fan	Drive the main fan	ON	Display when the lock occurs.
Top Fan	Drive the top fan	ON	Display when the lock occurs.
Front Fan	Drive the front fan	ON	Display when the lock occurs
SMPS Fan	Drive the SMPS fan	ON	Display when the lock occurs
Toner Motor	Drive the toner motor	ON	Display when the lock occurs
Tray1 Motor	Drive the pick-up 1 motor. When driving it, display the encoder interval with figure. (The normal interval value is '272 ±5)	ON ON	Display when the lock occurs
Tray2 Motor	Drive the pick-up 2 motor. When driving it, display the encoder interval with figure. (The normal interval value is '272 ±5)	ON	Display when the lock occurs
Tray3 Motor	Drive the pick-up 3 motor. When driving it, display the encoder interval with figure. (The normal interval value is '272 ±5)	ON	When the option cassette is mounted it display if the lock occurs.
Tray4 Motor	Drive the pick-up 4 motor. When driving it, display the encoder interval with figure. (The normal interval value is '272 ±5)	ON	When the option cassette is mounted it display if the lock is occurred.
MPF Motor	Drive the MPF pickup motor	ON	Display when the lock occurs.
VOD Duty Check	Display the toner supplying sensing VOD duty while driving the main motor	-	The normal duty if 90~140.

※ In the **[Chapter 1 OUTLINE]**, the functions of the motor and fan are explained.
※ The tray3 and the tray 4 is the Pickup motor mounted to the option cassette (SCF).
※ VOD: Voltage Of Digital.

6.4.5 Sensor Test: Testing the operating status of the sensors in the Engine.

Enter the sub menu then toggle the sensor. The display will show the sensor's status. The Select/Cancel button is not operated.

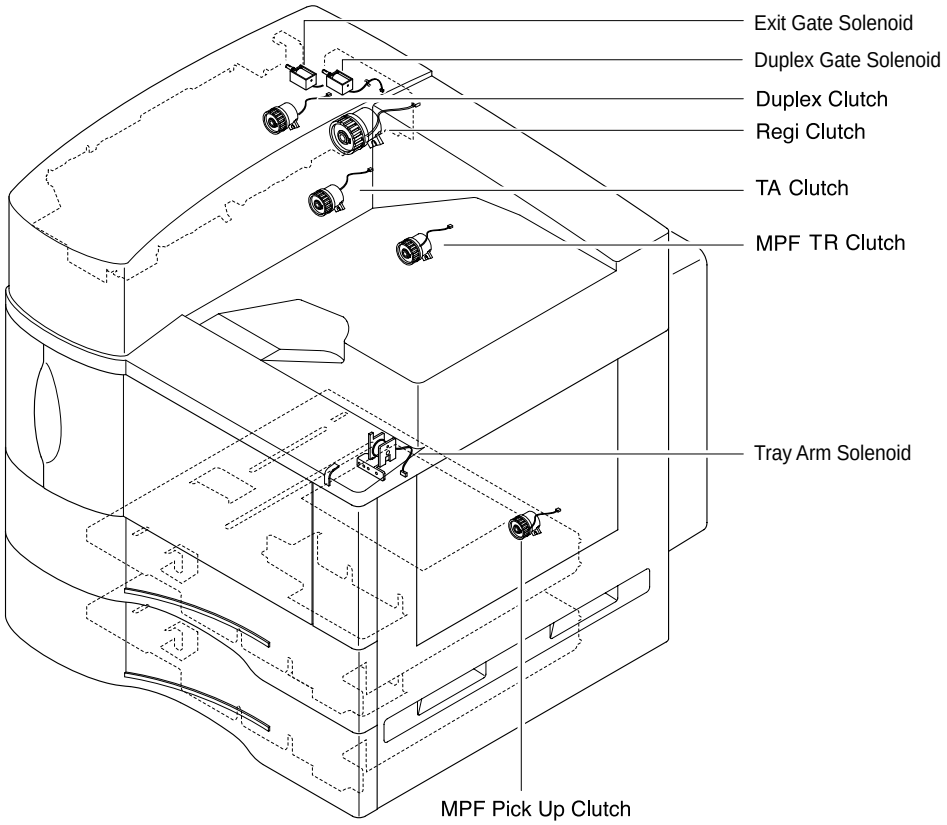


Item	Description	The default value when selecting	Remarks
MPF Jam Sensor1	The status of the MPF Jam 0 Sensor	OFF	MPF :Multi Propose Feeder
MPF Jam Sensor2	The status of the MPF TR Jam sensor	OFF	
MPF Empty Sensor	The status of the MPF paper empty sensor	-	When paper is out : MPF EMPTY When paper exists: MPF PAPER EXIST
Regi Sensor	The status of the REGI sensor	OFF	
TA_1 Sensor	The status of the TA_1 sensor	OFF	TA : Take Away Unit
TA_2 Sensor	The status of the TA_2 sensor 0	OFF	
TA_SCF Sensor	The status of the TA_SCF sensor	OFF	
EXIT_R Sensor	The status of the exit_R sensor.	OFF	
EXIT_L Sensor	The status of the exit_L sensor.	OFF	
FULL_R Sensor	The status of the top bin full sensor.	OFF	
Duplex Sensor	The status of the duplex Jam 2 sensor	OFF	
Catch Sensor	The status of the catch sensor.	OFF	
Duplex Cover	The status of the duplex cover.	CLOSE	
Catch sensor	The status of the catch sensor	CLOSE	
Duplex cover	The status of the duplex cover sensor	CLOSE	
Front Cover	The status of the front cover sensor	CLOSE	
Left Cover	The status of the left cover sensor.	CLOSE	
MPF Trans	The status of the MPF door sensor.	CLOSE	MPF Transfer Unit의 장착 유무
Toner Kit	Display the existence of the toner cartridge	CLOSE	
Dev Kit	Display the existence of the Drum cartridge	CLOSE	
Scf Cover	The status of the SCF cover	CLOSE	When the SCF is mounted.
Toner Level Sensor	The state of the Toner level sensor	HIGH / LOW	Test the status of the level sensor.
Tray-1~4 sensor	• Test the paper remaining sensor. • Display the existence of the cassette, the size of inserted papers, and the amount of papers		Empty-Under 40 Exist - 50~210 Pick ARM Error -236

* The functions of the each solenoid and the clutch is explained in the **[Chapter 1 OUTLINE]**.

6.4.6 Solenoid Test: Testing the solenoid and the clutch in the Engine.

It is enabled when inputting the enter key and disable when inputting the on-line key.



Item	Description	The default value when selecting	Remarks
REGI clutch test	The REGI clutch operating test	ON	Not displayed when it is locked.
MPF Clutch Test	The MPF Pickup clutch operating test	ON	Not displayed when it is locked.
MPF Solenoid Test	The MPF TR clutch operating test	ON	Not displayed when it is locked.
Tray1 Solenoid Test	The Tray 1 pickup arm operating test.	ON	Not displayed when it is locked.
Tray2 Solenoid Test	The Tray 2 pickup arm operating test.	ON	Not displayed when it is locked.
Tray3 Solenoid Test	The Tray 3 pickup arm operating test.	ON	Not displayed when it is locked.
Tray4 Solenoid Test	The Tray 4 pickup arm operating test.	ON	Not displayed when it is locked.
Exit Gate Solenoid Test	The exit gate solenoid operating test.	ON	Not displayed when it is locked.
Duplex Gate Solenoid Test	The duplex gate solenoid operating test.	ON	Not displayed when it is locked.
Duplex Clutch Test	The duplex clutch operating test.	ON	Not displayed when it is locked.
TA Clutch Test	The Take Away clutch operating test.	ON	Not displayed when it is locked.

* The functions of the each solenoid and the clutch is explained in the **[Chapter 1 OUTLINE].**

6.4.7 Fuser Test : Fuser Assembly's movement can be confirmed.

Item	Description	Remarks
Set Temperature	Input the value of ADC temperature that is intended to be tested.	Using the Value -/+ Key, set the desired value of the ADC temperature.
Current Heat	The current thermistor reading to mark the value of the ADC temperature.	Mark the current temperature with ADC level. • When executing the Set Temperature Item, it is automatically executed.

6.4.8 HV(High Voltage) Test: Can confirm various HV from the output power of the HVPS.

Item	Description	Remarks
Dev Bias Test	After pressing the 'select/cancel' Key, Dev Bias can be admitted	a standard value - 500V
Mhv Ref. Adjust	After admitting the standard voltage Mhv, The read ADC value is displayed	When B'd tuning the HV, adjust so that it is panel value. (Main Motor will run and it will have the same order and timing as the Printing process to admit the HV)
hv Ref.Adjust	After admitting the standard voltage Thv, The read ADC value is displayed	When B'd tuning the HV, adjust so that it is panel value. (Main Motor will run and it will have the same order and timing as the Printing process to admit the HV)
Thv (-) Test	After pressing the "Select/cancel" key, Thv negative voltage is admitted.	A standard value -1KV ~ -1.4KV
Cover Bias Test	After pressing the "Select/cancel" Key, Cover Bias is admitted	A standard value 400V
Erase Lamp Test	After pressing the "Select/cancel" Key, Erase Lamp will be on test.	Erase Lamp ON/OFF operating confirmation

• MHV : Charge Voltage • THV : Transfer High Voltage • Dev Bias : Developing Voltage

※Test Equipment needed in measuring the HV

- DVM (Digital Volt Meter): voltage measurement apparatus
- (High Voltage Probe): Because the intended voltage measurement cannot be measure with the standard DVM, HV probe, which can mark the voltage at 1/1000, is needed.

Actual measuring voltage = "Status Voltage Value" * 1000

- a resistor: To measure the selected HV, it must be measured while it is connected to resistance.

THV(+),THV(-) measurement : 100MOhm
MHV measurement : 30MOhm

※ Cautionary Facts while measuring HV

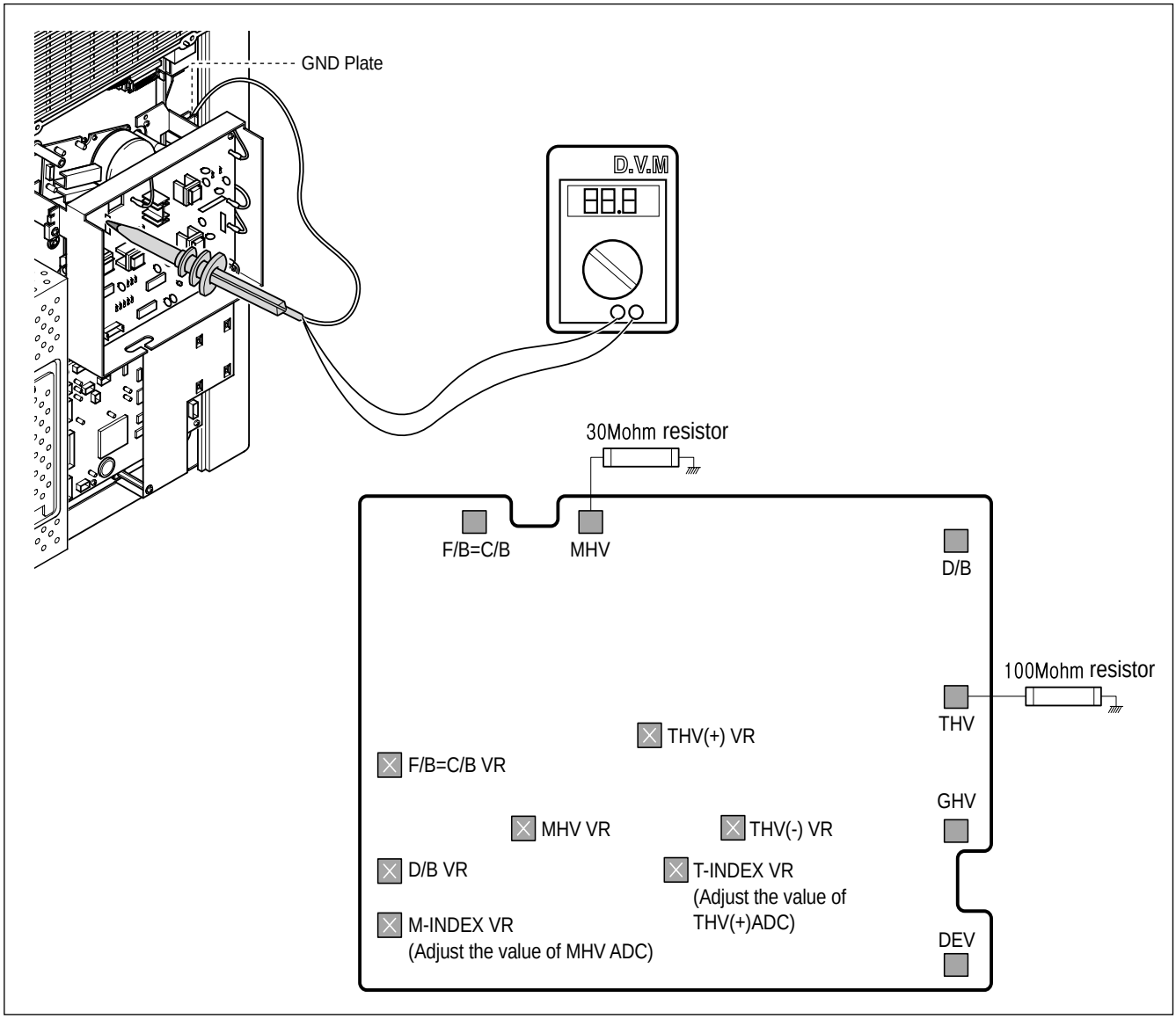
❶ Eliminate the toner cartridge and the drum cartridge in SET.
❷ When measuring MHV, measure after connecting 30MOhm between the MHV terminal of the HVPS and GND.
❸ When measuring THV, measure after connecting 100MOhm between the THV terminal resistance of the HVPS and the GND.
❹ When adjusting the ADC value, adjust after eliminating the HV probe.

※ HV measuring order

❶ Disassemble the mounted toner cartridge and the drum cartridge in the printer.
❷ Close all covers
❸ Disassemble the Rear cover and prepare to measure as shown below.
❹ Connect the HV probe to the DVM
❺ Connect the 100MΩ resistor to the THV terminal.
❻ Connect the 30MΩ resistor to the MHV terminal.
❹ connect the power (Toner open error occurrence)
❺ Enter the HV Test mode

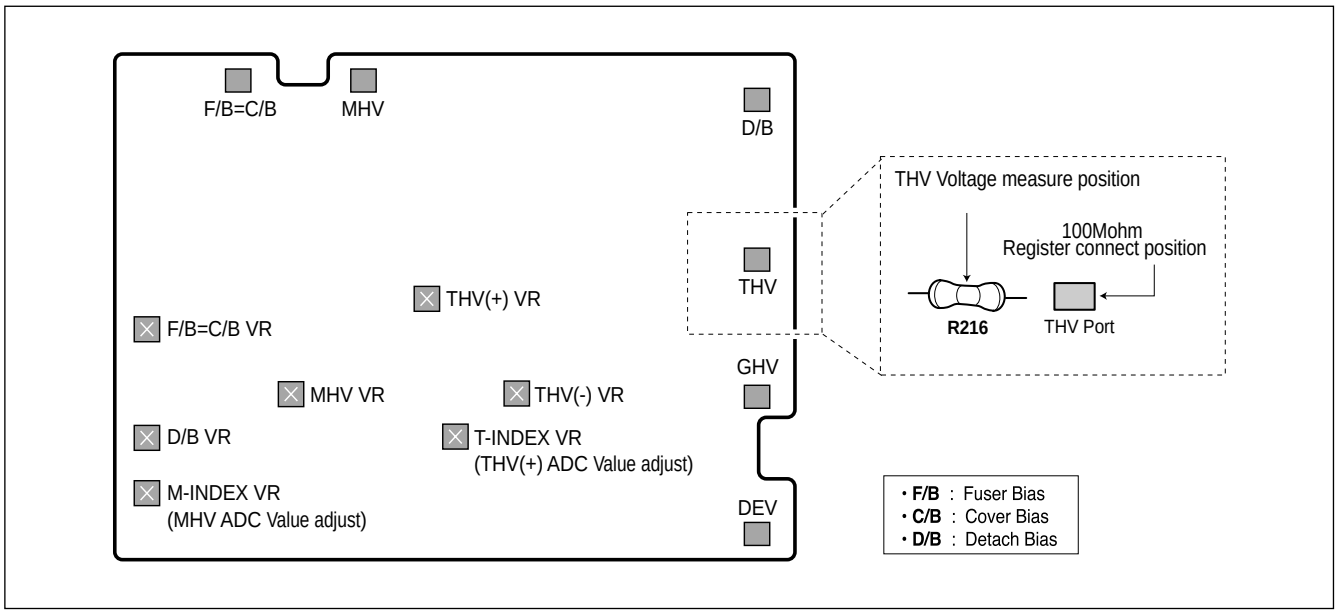
SERVICE MENU →EDC MODE →THV TEST

❻ Choose the desired voltage and measure



※TEST

Each HV output position and voltage measuring point is as the following figure.



❶ Dev Bias measurement

- After selecting Dev Bias Test by pressing the item Key, press the select key.
- A standard value - (-)500V
- In the case of fluctuation, turn the DEV VR to match the standard value.
- Suspend by pressing the on-line Key.

❷ MHV voltage measurement and MHV REF adjust adjustment

- Press the item key, and select the MHV REF adjust, and press the select key.
- Measure the voltage of the MEV terminal.
- A standard value - (+) 1300V (ADC value: 76)
- In the case of MHV voltage value fluctuation, turn the MHV to set.

⚠ **Caution** : Must connect the 30MOhm resistor and measure.

- After deleting the HV Probe, confirm the value of the LCD Panel ADJ.
- In the case of fluctuation, turn the M-INDEX VR to set the ADC value.
- Suspend by pressing the on-line key.

❸ THV voltage and THV REF Adjustment

- Press the item key to select the THV REF ADJUST and press the select Key.
- Measure the voltage of the THV terminal.

> ⚠ **Caution** : Voltage measurement point must be done by placing the HV probe to the left side of the terminal resistance (R216) and 100MOhm resistor must be connected to measure.

- A standard value: (+)2500V (ADC Value: 177)
- In the case of fluctuation, turn the THV(+)VR to set.
- After removing the HV Probe, confirm the LCD Panel ADJ value.
- In the case of fluctuation, turn the T-Index VR to set.
- Suspend by pressing the on-line key.

❹ THV(-) voltage measurement

- After pressing the item Key and selecting the THV(-), press the select key.
- Measure the voltage of the THV terminal.

> ⚠ **Caution** : Voltage measurement point is identical to the THV measurement point.

- A standard value: (-)1400V
- In the case of fluctuation, turn THV(-)VR to set.
- Suspend by pressing the on-line key.

❺ COVER BIAS TEST

- Press the item key and select the cover bias test and press the select key.
- Measure the voltage of the F/B terminal.
- A standard value: (+)400V
- In the case of fluctuation, turn F/B VR to set
- Suspend by pressing the no-line key.

❻ DETACH BIAS TEST

- Press the item key and select the DETACH BIAS TEST and press the select key.
- Measure the voltage of the D/B.
- A standard value: (-)1800V
- In the case of fluctuation, turn D/B VR to set.

7. Exploded Views and Parts List

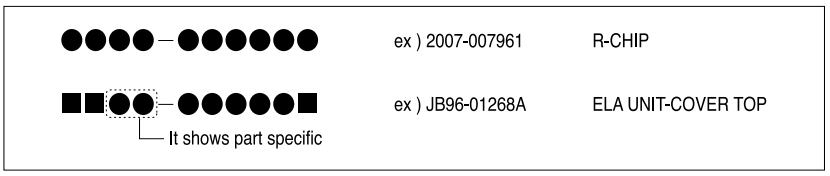
- The parts mentioned in the **[Exploded View & Parts List]** have high potential of delinquency and can be replaced by a service person.
- If there is a delinquent part, replace the part by the part unite displayed in the analysis diagram and service parts.

7.1 Main Unit Assembly ..... **page(7-2)**
7.2 Controller Assembly ..... **page(7-4)**
7.3 Duplex Assembly ..... **page(7-6)**
7.4 Frame Upper Assembly ..... **page(7-8)**
7.5 SCF Main Assembly ..... **page(7-10)**
7.6 Pick-Up Assembly ..... **page(7-12)**
7.7 MPF Pick-Up Assembly ..... **page(7-14)**
7.8 Screws ..... **page(7-16)**
7.9 Others (Separately purchase) ..... **page(7-18)**
7.10 PM-KIT ..... **page(7-19)**

Way to observe Part Code & Description

Part code and Description is quoted and controlled by determined standard. Refer to this determined standard, it will help with ordering Part.

- **There are two kinds of Part code inscription type.**



(● : figure, ■ : character (alphabet))

Type 1 : Controlled by Company : It can be commonly used for all kinds of product SEC produce. Mostly, electronics Parts.

Type 2 : Controlled by Division : It is used or one produce. Mostly, Mostly, mechanical Parts.

- **A/S privately used part :** It is only used for A/S .
- **Ass'y part :** Assembled by more than 2 Parts. If necessary part is not A/S Part, Ass'y part including necessary par can be used. It is shown in the diagram and drawing of SVC manual.

- Ass'y part and A/S privately used Part is distinguished by part Code and Description. The are inscription type 2. It is recognized by Part character and front side of description.

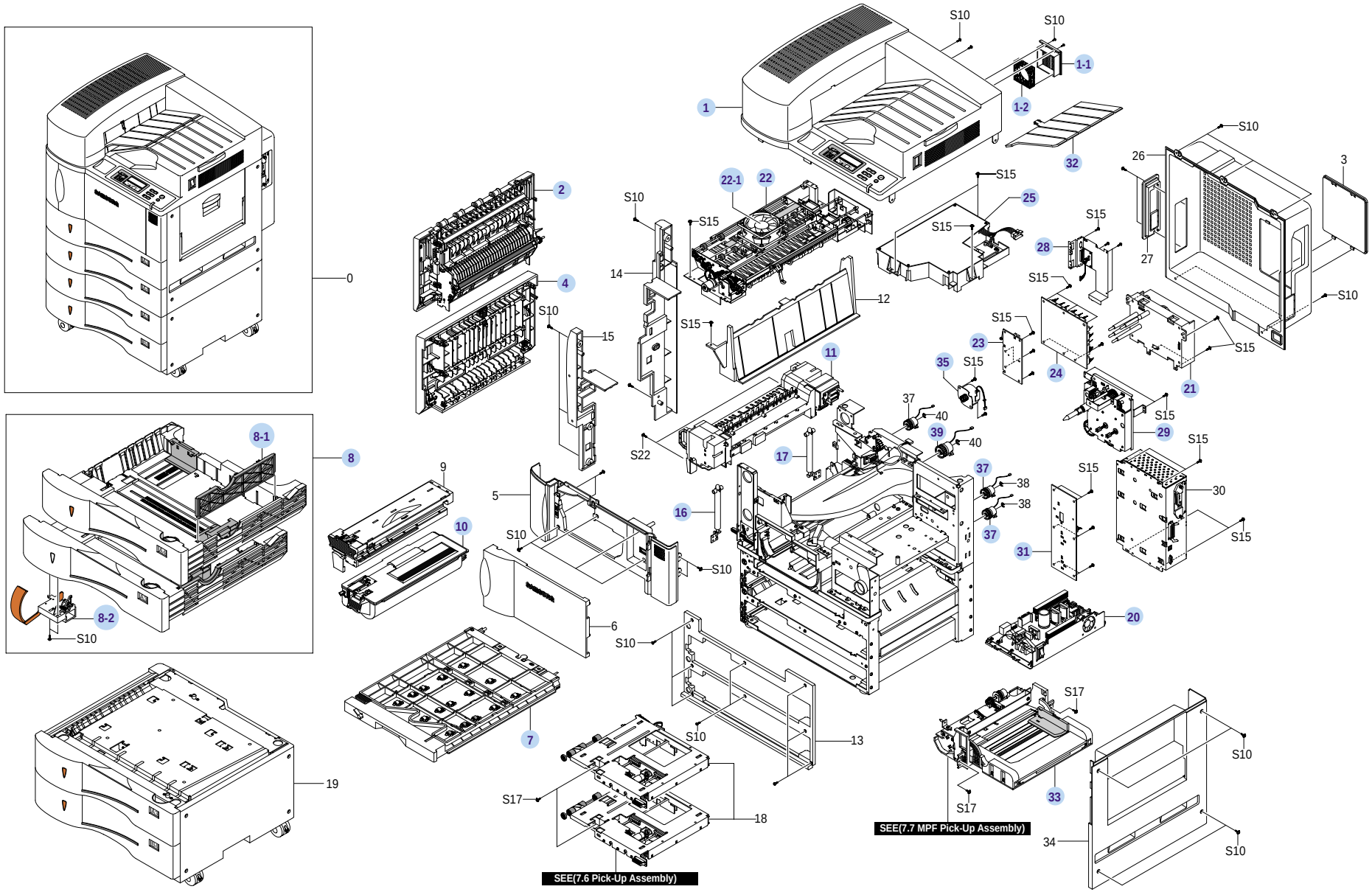
DIVISION	PART CODE	DESCRIPTION
A/S Private	**81-****** (JB81-00039A)	AS-***** (AS-USE)
ASS'Y Part	**75-****** (JB75-00068A)	MEC-***** (MEC-CHUTE)
ASS'Y Part	**92-****** (JB92-01131A)	PBA ****** (PBA MAIN-CONTROLLER)
ASS'Y Part	**97-****** (JB97-01089A)	MEA ****** (MEA UNIT-PULLEY IDLE)

7.1 Main Unit Assembly

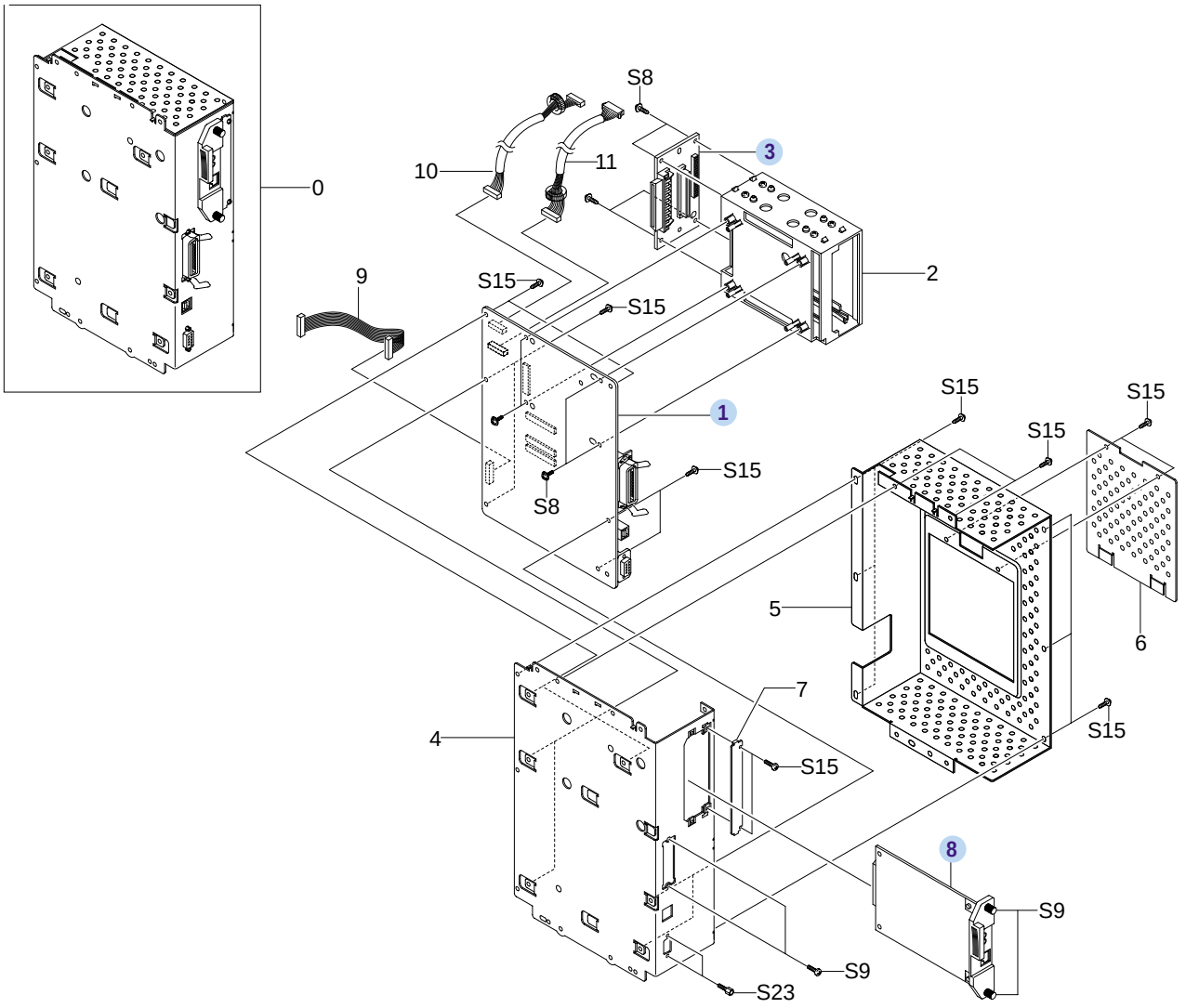
Main Unit Assembly Parts List

Type (**Service** : Service Parts, **Consumable** : Consumption Parts, **PM-KIT** : Maintenance-Parts)

No.	Description	SEC.Code	Q'ty	Type	Remark
0	ML-3550N				
1	ELA HOU-COVER_TOP E	JC96-02176B	1	Service	Duplex Unit
1-1	BRACKET-M-AIR-FILTER	JC61-00516A	1	PM-KIT	
1-2	CUSHION-MAIN FAN	JC63-00019A	1	PM-KIT	
2	ELA UNIT-DUPLEX	JC96-02133A	1	Service	
3	COVER-PCB COVER	*	1	X	
4	MEA UNIT-TAKE WAY	JC97-01506A	1	Service	
5	MEA UNIT-FRONT_COVER	*	1	X	
6	MEA UNIT-FRONT_DOOR	*	1	X	
7	MEA UNIT-MPF TR	JC97-01509A	1	Service	
8	MEA UNIT-CASSETTE E	JC97-01507B	2	Service	
8-1	HOLDER-LOCK LOWER CST	JC61-00472A	2	Service	
8-2	ELA UNIT-REMAIN PAPER ASS'Y	JC96-02386A	1	Service	
9	ELA UNIT-PROCESS UNIT ASS'Y	*	1	X	Drum cartridge
10	ELA UNIT-TONER CONTAINER	JC96-02222B	1	Service	Toner cartridge
11	ELA UNIT-FUSER 220V	JC96-02135A	1	PM-KIT	220V
	ELA UNIT-FUSER 110V	JC96-02282A	1	PM-KIT	110V
12	COVER-EXIT COVER	*	1	X	
13	COVER-INNER FRONT CASSETTE	*	1	X	
14	COVER-INNER SIDE BACK	*	1	X	
15	COVER-INNER SIDE FRONT	*	1	X	
16	MEA UNIT-DAMPER,R	JC97-01543A	1	Service	
17	MEA UNIT-DAMPER,L	JC97-01542A	1	Service	
18	ELA UNIT-PICK UP E	JC96-02136B	2	Service	
19	ELA-UNIT SCF	*	1	X	Optional part
20	ELA UNIT-SMPS 220V	JC96-02420A	1	Service	SMPS (220V)
	ELA UNIT-SMPS 110V	JC96-02557A	1	Service	SMPS (110V)
21	ELA UNIT-HVPS	JC96-02418A	1	Service	HVPS
22	ELA UNIT-EXIT	JC96-02134A	1	Service	
22-1	FAN-MAIN	JC31-00018A	1	PM-KIT	
23	PBA ETC-TA_SENSOR	JC92-01293A	1	Service	T/A PBA
24	PBA MAIN-ENGINE	JC92-01523A	1	Service	
25	UNIT-LSU A3	JC59-00016A	1	Service	LSU
26	COVER-REAR COVER	*	1	X	
27	COVER-OPTION CONNECTOR	*	1	X	
28	PBA SUB-SCF ENGINE JOINT	JC81-00799A	1	Service	SCF Joint PBA
29	ELA UNIT-DRIVE	JC96-02132A	1	Service	
30	ELA HOU-CONTROLLER	*	1	X	
31	PBA ETC-PAPER SIZE	JC92-01296A	1	Service	Paper Size PBA
32	PLATE-STACKER FD	JC61-00572A	1	Service	
33	MEA UNIT-MPF PICK UP	JC97-01508A	1	Service	
34	COVER-RIGHT COVER	*	1	X	
35	MOTOR-STEP 7.5-DEG	JC31-00002C	1	Service	Duplex Motor
37	MEP-CLUTCH SMALL	JC47-00003A	3	Consumable	
38	RING-E	*	2	X	
39	MEP-CLUTCH REGI	JC47-00002A	1	Consumable	
40	RING-E	*	2	X	


0
1
1-1
1-2
2
3
4
5
6
7
8
8-1
8-2
9
10
11
12
13
14
15
16
17
18
19
20
22
22-1
23
24
25
26
27
28
29
30
31
32
33
34
35
37
38
39
40
S10
S15
S17
S22
SEE(7.6 Pick-Up Assembly)
SEE(7.7 MPF Pick-Up Assembly)

7.2 Controller Assembly

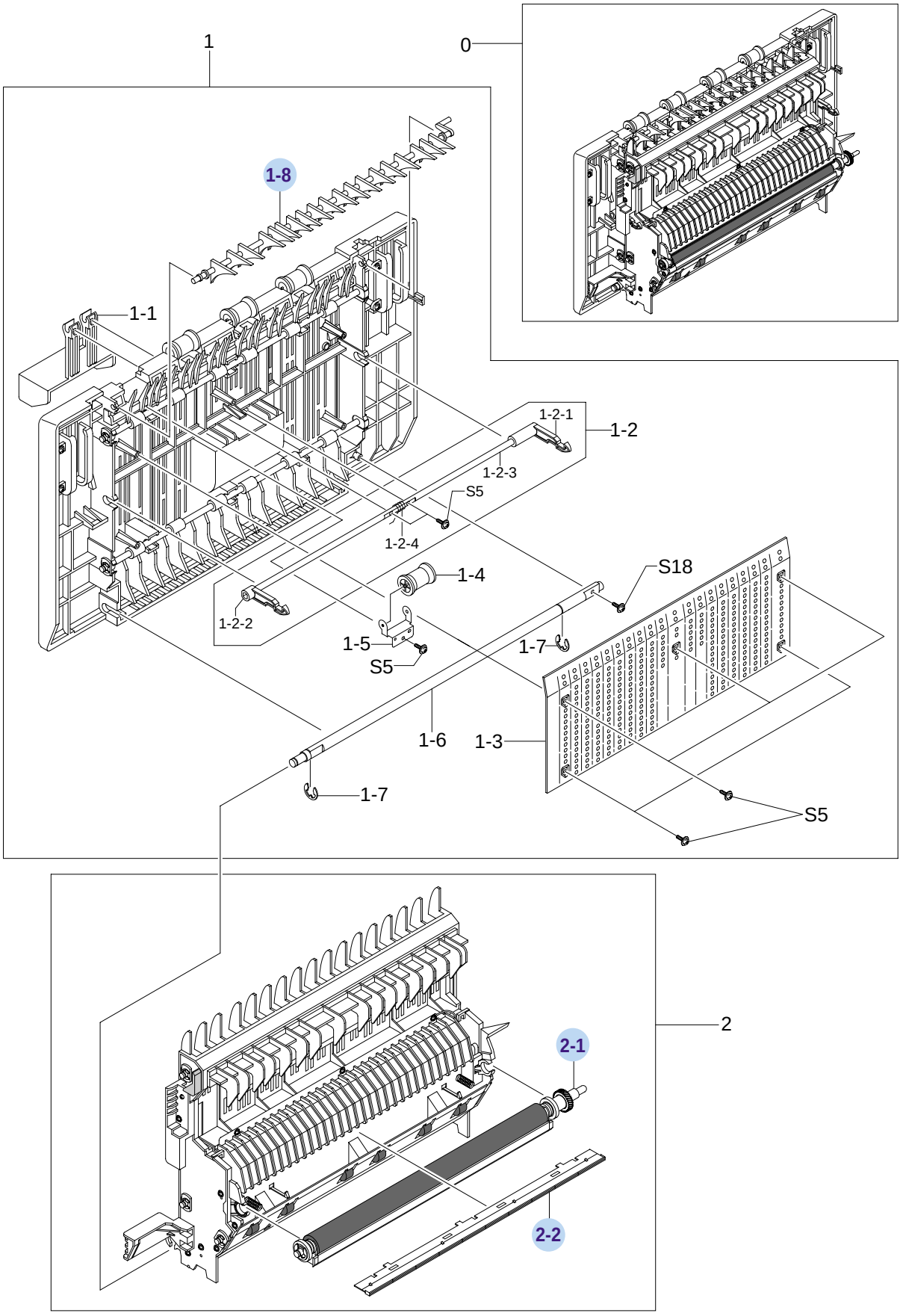


Controller Assembly Parts List

Type (**Service** : Service Parts, **Consumable** : Consumption Parts, **PM-KIT** : Maintenance-Parts)

No.	Description	SEC.Code	Q'ty	Type	Remark
1	PBA MAIN-VIDEO CONTROLLER (110V)	JC92-01521A	1	Service	Video PBA (110V)
	PBA MAIN-VIDEO CONTROLLER (220V)	JC92-01522A	1	Service	Video PBA (220V)
2	GUIDE-CARDS HOUSING	*	1	X	
3	PBA SUB-OPTION INTERFACE	JC81-00802A	1	Service	Option-Interface PBA
4	CASE-RIP LWR	*	1	X	
5	CASE-RIP UPR	*	1	X	
6	BRACKET RIPCASE	*	1	X	
7	BRACKET-DUMMY HDD	*	1	X	
8	ELA HOU-NETWORK CARD	JC96-02251A	1	Service	Network Card
9	ASS'Y HARNESS-RIP INTERFACE	*	1	X	
10	ASS'Y HARNESS-SMPS RIP	*	1	X	
11	ASS'Y HARNESS-OP-PANEL FRAME	*	1	X	

7.3 Duplex Assembly

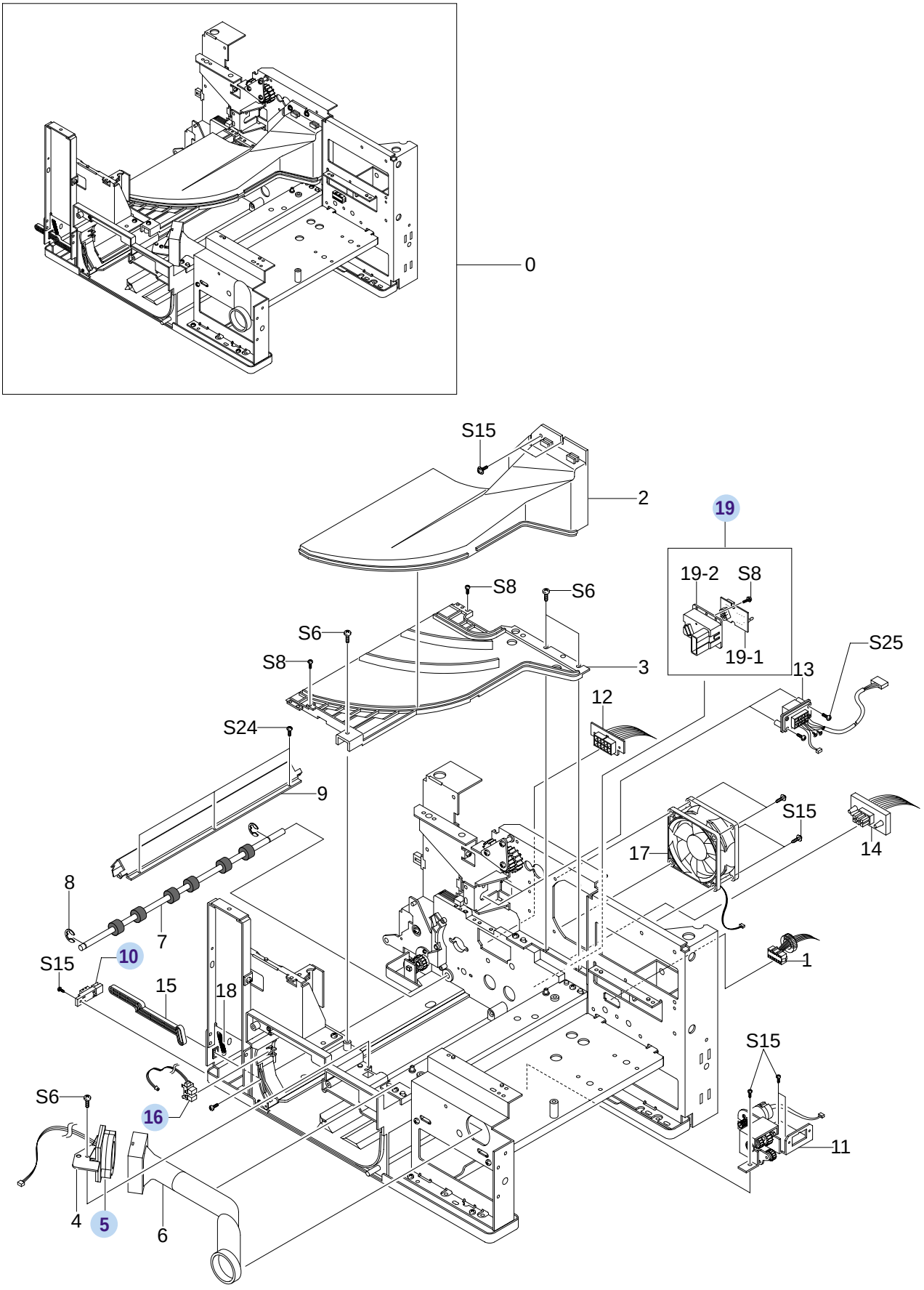


Duplex Assembly Parts List

Type (**Service** : Service Parts, **Consumable** : Consumption Parts, **PM-KIT** : Maintenance-Parts)

No.	Description	SEC.Code	Q'ty	Type	Remark
0	ELA UNIT-DUPLEX	*	1	X	
1	ELA UNIT-LEFT DOOR ASS'Y	*	1	X	
1-1	HANDLE-LOCK DUP	*	1	X	
1-2	ELA UNIT-LOCK SHAFT ASS'Y	*	1	X	
1-2-1	LOCK-LEFT DUP	*	1	X	
1-2-2	LOCK-RIGHT DUP	*	1	X	
1-2-3	SHAFT-DOOR DUP	*	1	X	
1-2-4	SPRING-HANDLE LOCK DUP	*	1	X	
1-3	PLATE-COVER DUP	*	1	X	
1-4	ROLLER-PINCH ROLLER FU	*	4	X	
1-5	BRACKET-ROLLER DUP	*	4	X	
1-6	SHAFT-DR DUPLEX	*	1	X	
1-7	RING-E	*	4	X	
1-8	ARM-GATE DUPLEX	JC66-00106A	1	Service	
2	ELA UNIT-BASE/DUPLEX ASS'Y	*	1	X	
2-1	ELA UNIT-TRANSFER/ROLLER ASS'Y	JC96-02840A	1	PM-KIT	Transfer Roller
2-2	BRACKET-DETCH SAW	JC61-00184A	1	Service	

7.4 Frame Upper Assembly

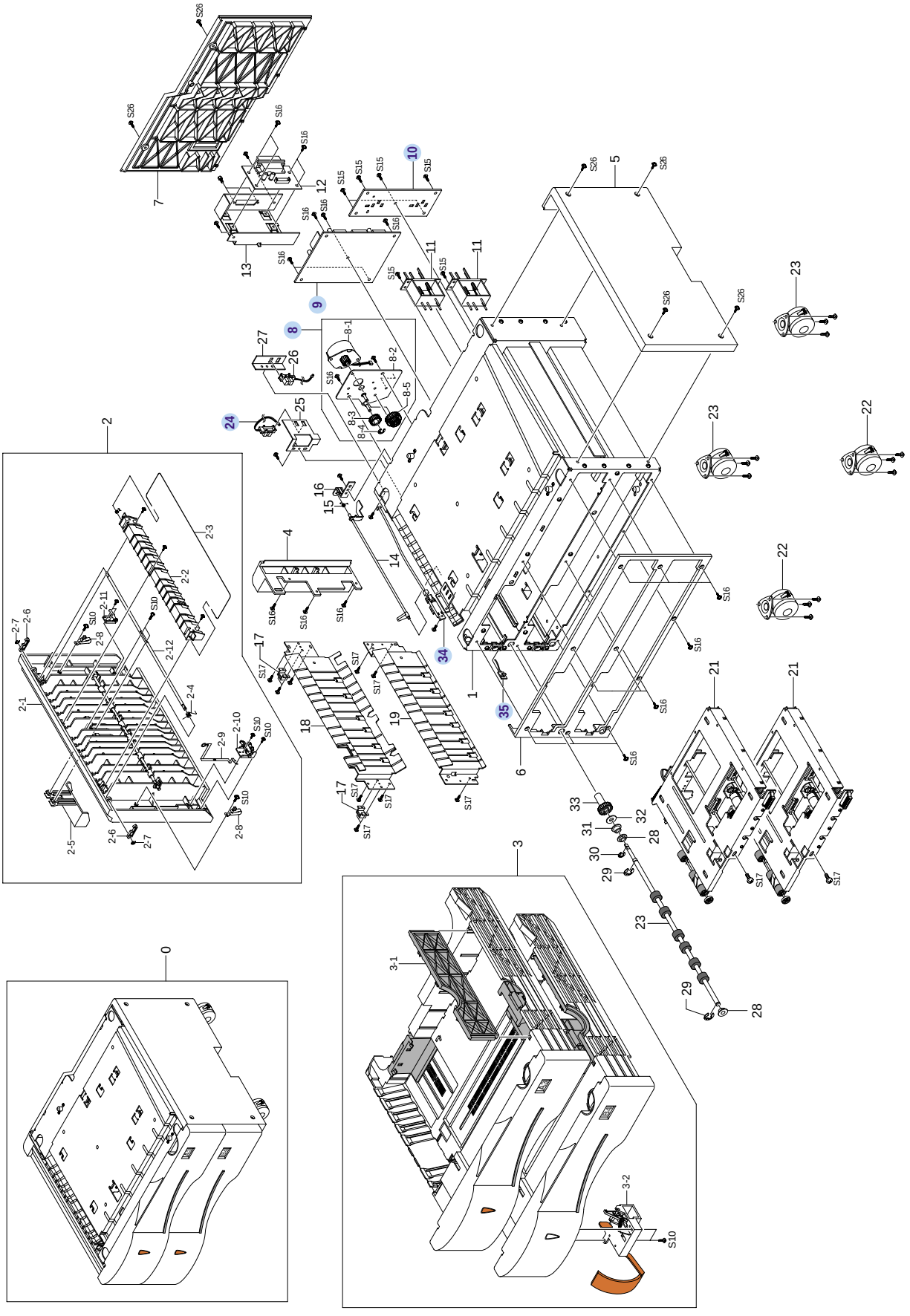


Frame Upper Assembly Parts List

Type (**Service** : Service Parts, **Consumable** : Consumption Parts, **PM-KIT** : Maintenance-Parts)

No.	Description	SEC.Code	Q'ty	Type	Remark
0	MEA UNIT-FRAME UPPER	*	1	X	
1	CBF HARNESS-LSU FRAME	*	1	X	
2	HOUSING-AIR DUCT	*	1	X	
3	BASE-AIR DUCT	*	1	X	
4	BRACKET-M-FAN	*	1	X	
5	FAN-FRONT	JC31-00019A	1	Service	Front Fan
6	HOUSING-DUCT FRONT	*	1	X	
7	ROLLER-REGI	*	1	X	
8	RING-E	*	1	X	
9	GUIDE-REGI B	*	1	X	
10	PHOTO-INTERRUPTER	0604-001230	2	Service	Regi Sensor
11	MEA ETC-DRIVE BASE ASS'Y	*	1	X	
12	ELA UNIT-DEVE CONNECTOR ASS'Y	*	1	X	Drum cartridge detection
13	ASS'Y HARNESS FUSER FRAME	*	1	X	
14	ELA UNIT-PROTECT CONNECTOR	*	1	X	Toner cartridge detection
15	ARM-ROAD PUSH	*	1	X	
16	PHOTO-INTERRUPTER	0604-001095	1	Service	Front Cover Open Sensor
17	FAN-MAIN	*	1	X	Main Fan
18	SPRING EC-ARM	*	1	X	
19	ELA UNIT-TNR/SENSOR ASS'Y	JC96-02148A	1	Service	
19-1	PBA SUB-TONER EMPTY_SEN	*	1	X	Toner Level Sensor
19-2	BRACKET-MC	*	1	X	

7.5 SCF Main Assembly

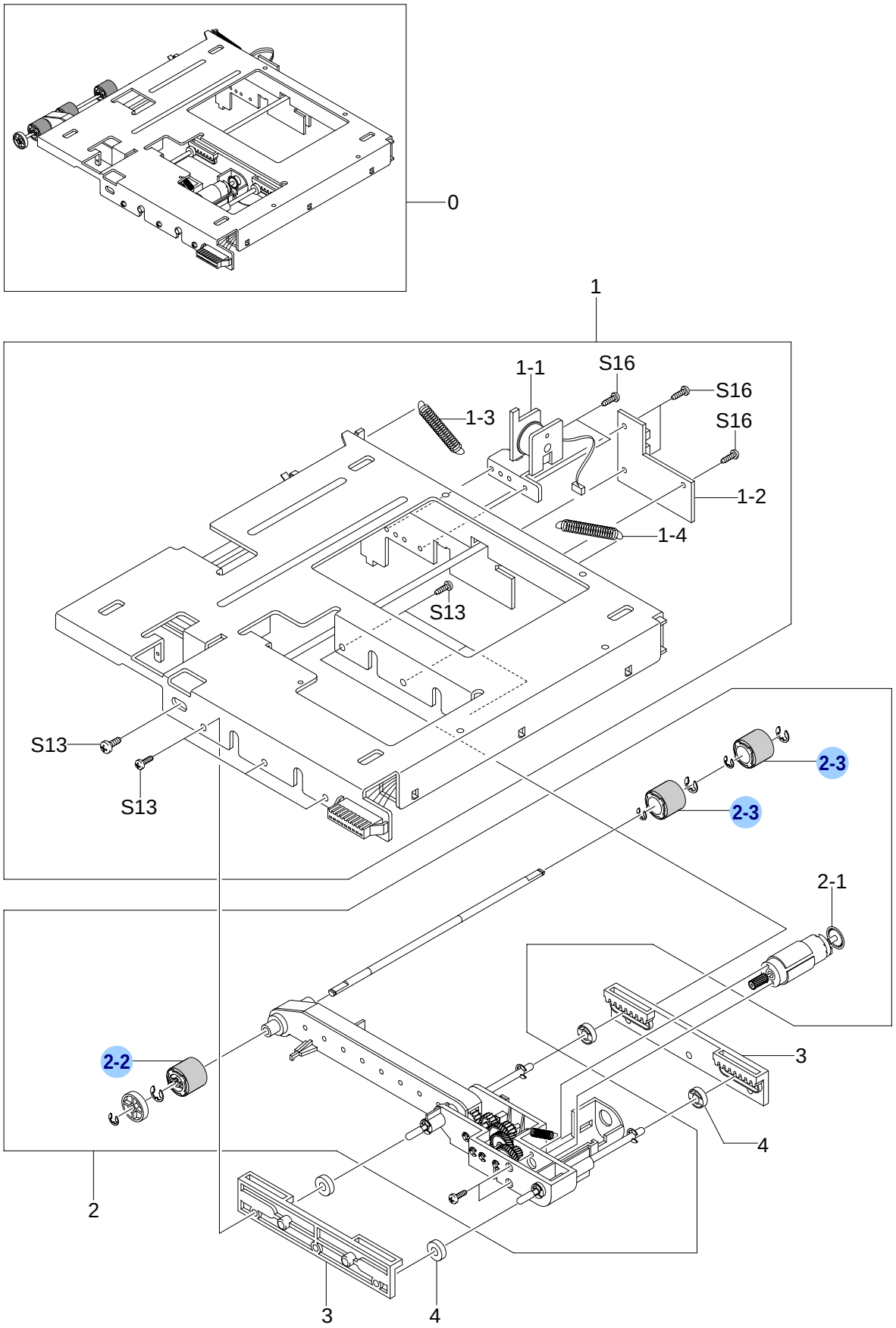


SCF Main Assembly Parts List

Type (**Service** : Service Parts, **Consumable** : Consumption Parts, **PM-KIT** : Maintenance-Parts)

No.	Description	SEC.Code	Q'ty	Type	Remark
0	ELA UNIT-SCF	*	1	X	Optional
1	FRAME-P-FF SCF	*	1	X	
2	ELA UNIT-SCF TAKE AWAY	*	1	X	
2-1	COVER-M-TA SCF	*	1	X	
2-2	GUIDE-M-GATE TA SCF	*	1	X	
2-3	SHAFT-REMOVE JAM	*	1	X	
2-4	BUSH-POM T/A	*	2	X	
2-5	HANDLE-T/A COVER	*	1	X	
2-6	LATCH-T/A COVER	*	2	X	
2-7	RING-E	*	2	X	
2-8	LOCKER-SNAPFIT	*	2	X	
2-9	PLATE-P-GND 2WAY SCF	*	1	X	
2-10	ELA UNIT-PLATE PIVOT REAR	*	1	X	
2-11	ELA UNIT-PLATE PIVOT FRONT	*	1	X	
2-12	SHAFT-LATCH T/A	*	1	X	
3	MEA UNIT-CASSETTE	*	2	X	
3-1	HOLDER-LOCK LOWER CST	*	2	X	
3-2	ELA UNIT-REMAIN PAPER ASS'Y	*	1	X	
4	COVER-M-SIDE BACK SCF	*	1	X	
5	COVER-M-RIGHT SCF	*	1	X	
6	COVER-M-INNER SCF	*	1	X	
7	COVER-M-REAR SCF	*	1	X	
8	MEA ETC-MOTOR SCF	JC97-01631A	1	Service	
8-1	MOTOR-STEP 7.5_DEG	*	1	X	
8-2	BRACKET-P-MOTOR SCF	*	1	X	
8-3	GEAR-A	*	1	X	
8-4	RING-E	*	2	X	
8-5	GEAR-B	*	1	X	
9	PBA SUB-SCF CONTROLLER	JC92-01368A	1	Service	
10	PBA SUB-SCF PAPER	JC92-01369A	1	Service	
11	ELA UNIT-PAPER SENSOR ASS'Y	*	1	X	
12	PBA SUB-SCF JOINT	*	1	X	
13	FRAME-P-I_F SCF	*	1	X	
14	SHAFT-1 JAM SENSOR	*	1	X	
15	SPRING ETC-SENSOR	*	1	X	
16	BRACKET-PLATE 2 PIVOT	*	1	X	
17	BRACKET-SIAPFIT BRAKET	*	2	X	
18	GUIDE-TAKE AWAY 3	*	1	X	
19	GUIDE-TAKE AWAY 4	*	1	X	
21	ELA UNIT-PICK UP	*	2	X	
22	CASTER	*	4	X	
23	ROLLER-TAKE AWAY 1	*	1	X	
24	CBF HARNESS-JAM_SENSOR	*	1	X	
25	BRACKET-P-SENSOR SCF	*	1	X	
26	PHOTO-INTERRUPTER	0604-001095	1	Service	
27	BRACKET-P-MC TA SCF	*	1	X	
28	BUSH-8/5	*	2	X	
29	RING-E	*	2	X	
30	RING-E	*	1	X	
31	BUSH-8_10	*	1	X	
32	WASHER-PLAIN	*	1	X	
33	GEAR-ROLLER TA SCF	*	1	X	
34	PHOTO-INTERRUPTER	0604-001230	1	Service	
35	PHOTO-INTERRUPTER	0604-001243	1	Service	

7.6 Pick-Up Assembly

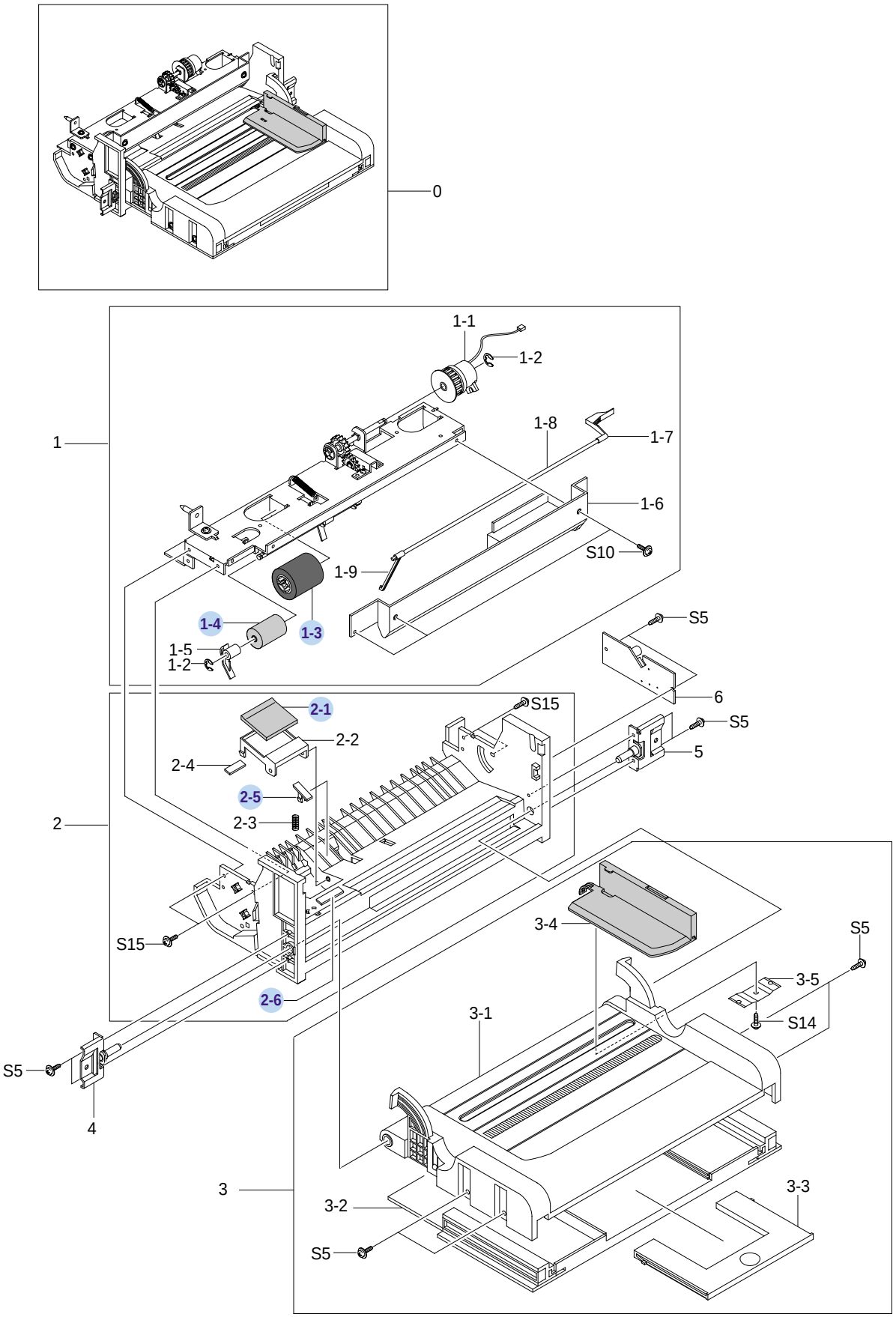


Pick-Up Assembly Parts List

Type (**Service** : Service Parts, **Consumable** : Consumption Parts, **PM-KIT** : Maintenance-Parts)

No.	Description	SEC.Code	Q'ty	Type	Remark
0	ELA UNIT-PICK UP E	JC96-02136B	2	Service	
1	ELA UNIT-FRAME/PICK UP ASS'Y	*	1	X	
1-1	SOLENOID PICK UP	*	1	X	Tray Arm Solenoid
1-2	PBA SUB-CASSETTE_SEN	*	1	X	Paper remaining detecting sensor
1-3	SPRING LOCK	*	1	X	
1-4	SPRING-PAPER SENSOR	*	1	X	
2	ELA UNIT-PICK_UP MAIN ASS'Y	*	1	X	
2-1	MOTOR-DC PICK UP	*	1	X	Pick up Motor
2-2	ELA UNIT-ROLLER FR PU E	JC96-02383B	1	PM-KIT	
2-3	ELA UNIT-ROLLER RE PU E	JC96-02382B	2	PM-KIT	
3	GEAR-RACK GUIDE	*	2	X	
4	GEAR-PICK UP 7	*	4	X	
5	SPRING RETURN PU	*	1	X	

7.7 MPF Pick-Up Assembly

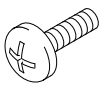
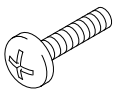
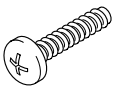
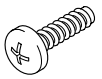
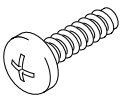
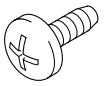
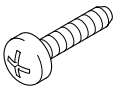
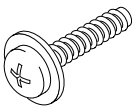
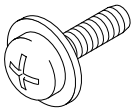
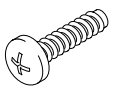
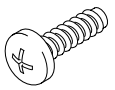


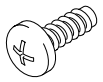
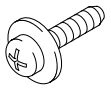
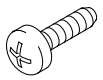
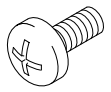
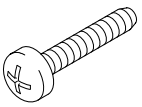
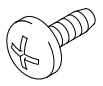
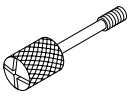
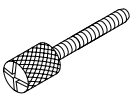
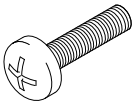
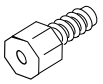
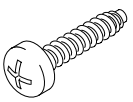
MPF Pick-Up Assembly Parts List

Type (**Service** : Service Parts, **Consumable** : Consumption Parts, **PM-KIT** : Maintenance-Parts)

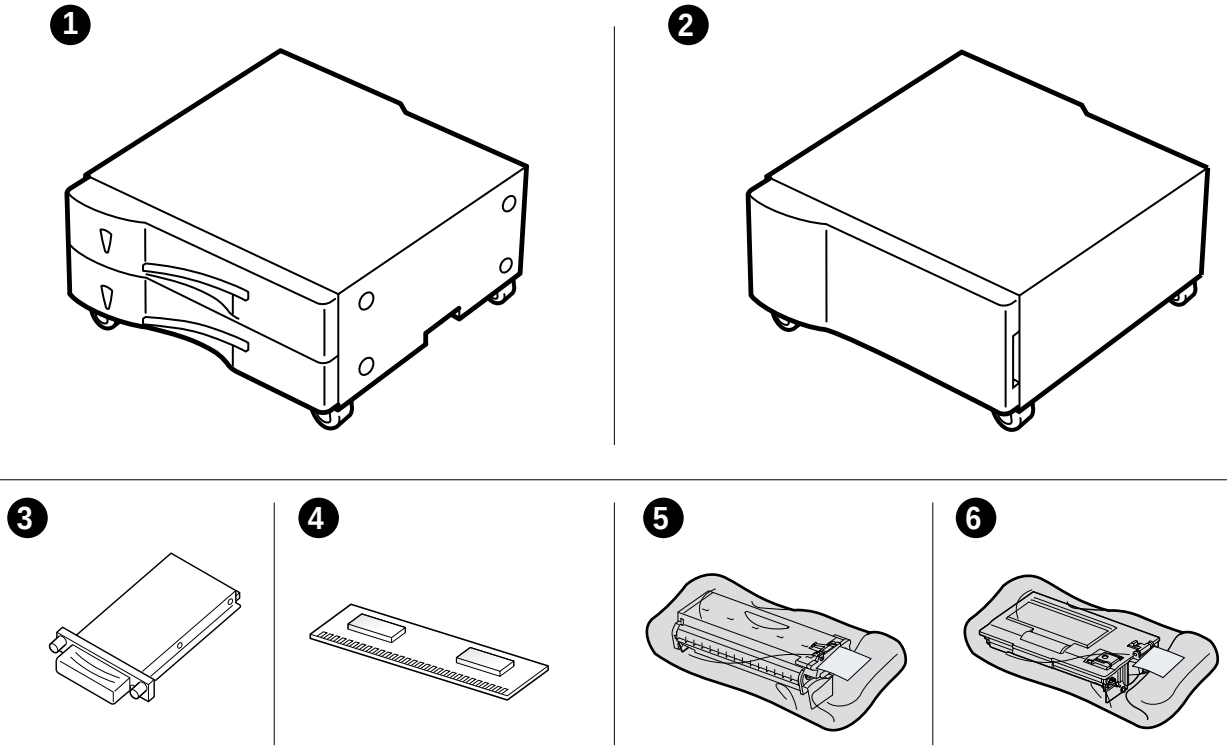
No.	Description	SEC.Code	Q'ty	Type	Remark
0	MEA UNIT-MPF PICK UP	JC97-01508A	1	Service	
1	ELA UNIT-MPF UPPER ASS'Y	*	1	X	
1-1	CLUTCH-SMALL	*	1	X	MPF Pick Up Clutch
1-2	RING-E	*	2	X	
1-3	MEA UNIT-SEPARATE ROLL MPF	JC97-01590A	1	PM-KIT	
1-4	MEA UNIT-PICK UP ROLL MPF	JC97-01591A	1	PM-KIT	
1-5	STOPPER-PAPER	*	2	X	
1-6	ARM-ACTUATOR HOLDER	*	1	X	
1-7	ARM-ACTUATOR PAPER	*	1	X	
1-8	SHAFT-SENSOR ROD	*	1	X	
1-9	ARM-ACTUATOR NO SENSOR	*	1	X	
2	ELA UNIT-MPF/LOWER ASS'Y	*	1	X	
2-1	PAD PLATE-ROLLER SEPARATE	JC69-00179A	1	PM-KIT	
2-2	HOLDER PAD	*	1	X	
2-3	SPRING-PAD	*	1	X	
2-4	PAD-PICK UP MPF	*	1	X	
2-5	PAD-PLATE STOPPER MPF	JC69-00178A	1	PM-KIT	
2-6	PAD PICK UP MPF	JC69-00358A	1	PM-KIT	
3	ELA UNIT-MPF TRAY ASS'Y	*	1	X	
3-1	TRAY-MPF UPPER	*	1	X	
3-2	TRAY-MPF LOWER	*	1	X	
3-3	TRAY-MPF CENTER	*	1	X	
3-4	GUIDE-SIDE PAPER A	*	1	X	
3-5	SPRING-FRICTION LEAF	*	1	X	
4	BRACKET-PIVOT MPF FR	*	1	X	
5	BRACKET-PIVOT MPF RE	*	1	X	
6	PBA SUB-MPF CONTROL	*	1	X	

7.8 Screws

NO	DESCRIPTION	SEC CODE	SPEC.	
S1	SCREW-MACHINE	6001-000125	BH,+,M3,L4,ZPC(YEL),SM20C,-	
S2	SCREW-MACHINE	6001-000131	BH,+,M3,L6,ZPC(YEL),SM20C,-	
S3	SCREW-MACHINE	6001-000568	PH,+,M3,L8,NI PLT,SM20C,-	
S4	SCREW-TAPPING	6002-000101	BH,+,2,M3,L10,ZPC(BLK),SM20C	
S5	SCREW-TAPPING	6002-000175	PWH,+,2,M3,L8,ZPC(YEL),SM20C	
S6	SCREW-TAPTITE	6003-000003	BH,+,B,M4,L10,CBLACK,SWRCH18A	
S7	SCREW-TAPTITE	6003-000008	BH,+,S,M3,L4,ZPC3,SWRCH18A	
S8	SCREW-TAPTITE	6003-000119	BH,+,B,M3,L8,CBLACK,SWRCH18A	
S9	SCREW-TAPTITE	6003-000179	PH,+,S,M3,L6,ZPC(YEL),SWRCH18A	
S10	SCREW-TAPTITE	6003-000196	PWH,+,B,M3,L10,NI PLT,SWRCH18A	
S11	SCREW-TAPTITE	6003-000221	PWH,+,S,M4,L8,ZPC(YEL),SWRCH18	
S12	SCREW-TAPTITE	6003-000259	BH,+,B,M3,L8,ZPC(YEL),SWRCH18A	
S13	SCREW-TAPTITE	6003-000261	BH,+,B,M3,L6,ZPC(YEL),SWRCH18A	

NO	DESCRIPTION	SEC CODE	SPEC.	
S14	SCREW-TAPTITE	6003-000264	PWH,+,B,M3,L6,ZPC(YEL),SWRCH18	
S15	SCREW-TAPTITE	6003-000266	PWH,+,S,M3,L6,ZPC(YEL),SWRCH18	
S16	SCREW-TAPTITE	6003-000269	BH,+,S,M3,L6,ZPC(YEL),SWRCH18A	
S17	SCREW-TAPTITE	6003-000301	BH,+,S,M4,L6,ZPC(YEL),SWRCH18A	
S18	SCREW-TAPTITE	6003-001062	PH,+,S,M3,L12,ZPC(WHT),SWRCH18	
S19	SCREW-TAPTITE	6003-001064	BH,+,S,M3,L5,ZPC(YEL),SWRCH18A	
S20	SCREW-SPECIAL	6009-001282	SWRCH1018,KNURLING,CH,+,M3,L15(2.5),NI PLT	
S21	SCREW-SPECIAL	6009-001281	SWRCH 1018A, KNURLING,CH+M3,L9,N1 PLT	
S22	SCREW-MACHINE	6001-000139	BH,+,M4,L10,ZPC(YEL)	
S23	SCREW	6003-001290	PH,+,S,M2.6,L4,NI PLT,SM2OC	
S24	SCREW-TAPTITE	6003-001001	FH,+B,M3,L8,BLACK	
S25	SCREW-TAPPING	6003-000170	PH,+,B,M4,L12,ZPC	
S26	SCREW-TAPPING	6002-00174A	PWH,+,2,M3,L10,ZPC(YEL),SM20C	

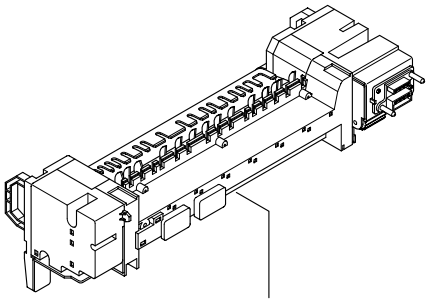
7.9 Others (Separately purchase)



NO.	ITEM	MODEL NAME	CODE	REMARK
1	500 sheets double bundle paper case	ML-3550SK	Separately purchase	SCF
2	Stand	ML-3550G3	Separately purchase	
3	Hard Disk	ML-3550MH	Separately purchase	2.5INCH,10000MB
4	Extend Memory	64M DRAM	JC92-01405C	100Pin,SDRAM Dimm
		128M DRAM	JC92-01405D	100Pin,SDRAM Dimm
5	Drum Unit	ML-3550R2	Separately purchase	50,000 sheets
6	Toner Cartridge	ML-3550DF	Separately purchase	25,000 sheets

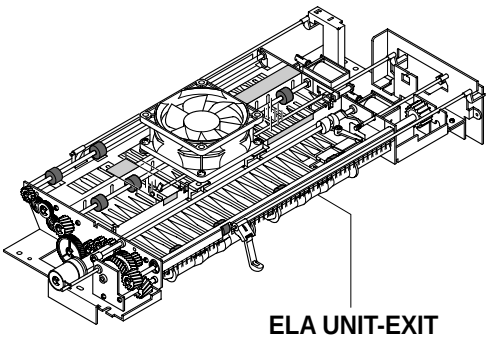
7.10 PM-KIT

<1> ELA UNIT-FUSER



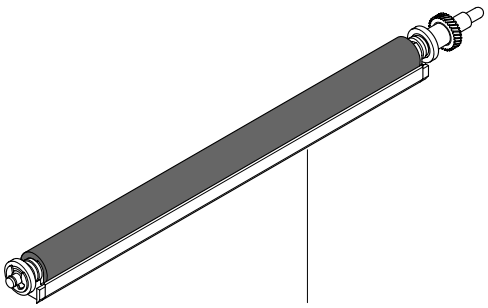
¥ ELA UNIT-FUSER(220V)
(JC96-02135A)
¥ ELA UNIT-FUSER (110V)
(JC96-02282A)

<2> ELA UNIT-EXIT



ELA UNIT-EXIT
(JC96-02134A)

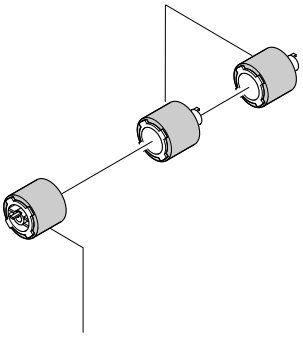
<3> ELA UNIT-TRANSFER ROLLER



ELA UNIT-TRANSFER ROLLER
(JC96-02840A)

<4> PICK-UP PM-KIT (TBD)

ELA UNIT-ROLLER RE PU E
(JC96-02382B)

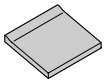


ELA UNIT-ROLLER FR PU E
(JC96-02383B)

<5> MPF PM-KIT (TBD)

MEA UNIT-SEPARATE ROLL MPF
(JC97-01590A)

MEA UNIT-PICK UP ROLL MPF
(JC97-01591A)



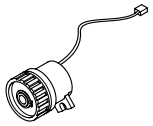
PAD PLATE-ROLLER SEPARATE
(JC69-00179A)

<6> MPF LOWER PM-KIT (TBD)

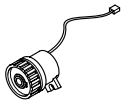
PAD PICK UP MPF
(JC69-00358A)

PAD-PLATE STOPPER MPF
(JC69-00178A)

<7> EXIT CLUTCH PM-KIT (TBD)

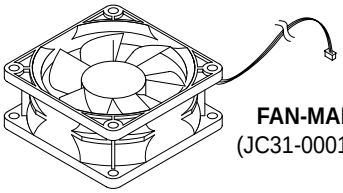


MEP-CLUTCH REGI
(JC47-00002A)

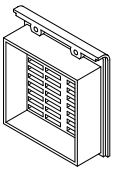


MEP-CLUTCH SMALL
(JC47-00003A)

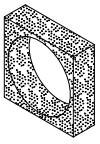
<8> FAN-FILTER PM-KIT (TBD)



FAN-MAIN
(JC31-00018A)



BRACKET-M-AIR-FILTER
(JC61-00516A)



CUSHION MAIN FAN
(JC63-00019A)

http://getMANUAL.com

PM-KIT LIST

No.	Description	SEC.Code	Q'ty	LIFE(K)	Remark
<1>	ELA UNIT-FUSER(220V)	JC96-02135A	1	200	EURO
	ELA UNIT-FUSER(110V)	JC96-02282A	1	200	USA
<2>	ELA UNIT-EXIT	JC96-02134A	1	500	
<3>	ELA UNIT-TRANSFER ROLLER	JC96-02840A	1	100	
<4>	PICK-UP PM-KIT	TBD		100	
	• ELA UNIT ROLLER FR PU E	JC96-02383B	1	100	
	• ELA UNIT ROLLER RE PU E	JC96-02382B	2	100	
<5>	MPF PM-KIT	TBD		100	
	• MEA UNIT-PICK UP ROLL MPF	JC97-01591A	1	100	
	• MEA UNIT-SEPARATE ROLL MPF	JC97-01590A	1	100	
	• PAD-PLATE ROLLER SEPARATE	JC69-00179A	1	100	
<6>	MPF LOWER PM-KIT	TBD		200	
	• PAD-PLATE STOPPER MPF	JC69-00178A	1	200	
	• PAD-PICK UP MPF	JC69-00358A	1	200	
<7>	EXIT CLUTCH PM-KIT	TBD		750	
	• MEP-CLUTCH REGI	JC47-00002A	1	750	
	• MEP-CLUTCH SMALL	JC47-00003A	1	750	
<8>	FAN-FILTER PM-KIT	TBD		750	
	• FAN-MAIN	JC31-00018A	1	750	
	• BRACKET-M-AIR FILTER	JC61-00516A	1	750	
	• CUSHION MAIN FAN	JC63-00019A	1	750	